



Swedish University of Agricultural Sciences
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Department of Forest Products, Uppsala

**Analyse of the early effects on the Ukrainian
forestry sector as a result of the Log Export ban**
– An interview study with economic analyses,
including theories about trade and export

*Analys av de tidiga effekterna på Ukrainas skogssektor
som ett resultat av exportförbud på timmer*
– *En intervjustudie med ekonomiska analyser,
inklusive teorier om handel och export*

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Keywords: corruption, economy, forestry, LEB, Log Export Ban, timber, Ukraine

*Master Thesis, 30 ECTS credit
MSc in Forestry 10/15*

*Advanced level in Forest Management
(EX0660)*

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Abstract

Illegal logging and illegal export of roundwood has been of great concern within the forestry sector around the whole world for a long time. One of the most common tools used in hopes to resolve this issue is a law called The Log Export Ban (LEB). When the government in a country implements this law, it means that the country is no longer allowed to export unprocessed wood. This has a drastic effect on the country itself, but also surrounding countries that has been dependent on import of the unprocessed wood. The aim of the law is however to help the country develop its national processing industry, create more job opportunities and this way increase the national income. The hope is also that a LEB will reduce the amount of illegal cutting and over harvest. Ukraine has been suffering from these issues and therefore the parliament decided to insert an export ban on all roundwood, except pine, starting in November 2015 and for pine starting from January 2017. This field study, conducted from April- May 2016, aims to analyse the early effects of the LEB in Ukraine, based on the national forest organisations perspective.

The opinions about the implementation of a LEB in Ukraine are widely spread among the respondent in the research. In general it is clear that the private forestry sector is in general positive towards the law, while that governmental sector is strongly negative. This result was not surprising, knowing that Ukraine has no forest privatisation, where only the governmental sector can own, harvest and export roundwood. Now when the country is facing a LEB, the forestry sector has to lie out a business strategy adapted to this new business environment in order to succeed. Although, the results show a very slow change, where most companies have chosen not to adjust to this new law because of political instabilities and an uncertain future.

Theories about export restrictions suggest that an export ban should lead to lower timber prices on the local market because of higher supply. This has not happened in Ukraine even if the harvest volume has stayed the same. Instead the governmental companies, who sell the timber, have increased the national prices slightly. This has left the private processing sector very disappointed, where they would like to buy more roundwood, but the prices are too high. At the same time the governmental companies explain that their timber goes to waste because they cannot sell everything on the Ukrainian market.

The explanations to these results seem to be complicated and should be investigated further. During this research, most respondents, explaining how deep it has its roots in the country, brought up corruption to the surface. Field trips, extended interviews by the researcher of this thesis, together with Ukrainian articles, news and professors all indicate that there is still illegal export from Ukraine to Romania.

Keywords: *Corruption, Economy, Forestry, LEB, Log Export Ban, Timber, Ukraine*

Sammanfattning

Illegal avverkning och illegal export av rundvirke har varit ett stort problem inom skogssektorn över hela världen under en lång tid. Ett av de mest använda verktygen för att försöka få bukt med detta problem är en lag, kallad Log Export Ban (LEB). När regeringen i ett land inför denna lag, betyder det att landet inte längre får exportera obearbetat virke. Det har en drastisk effekt på dels landet själv, men också på kringliggande länder som tidigare har varit beroende av import av det icke processade virket. Målet med denna lag är att utveckla landets egen processindustri, skapa fler jobbtillfällen och därmed öka den nationella inkomsten. Det finns också hopp om att LEB ska reducera mängden illegal avverkning och minska överavverkning. Ukraina har länge lidit av dessa problem och därför har parlamentet tagit beslutet att införa exportförbud på allt rundvirke, utom tall, från november 2015 och för tall från januari 2017. Denna fältstudie som är utförd i april- maj 2016, syftar till att analysera de tidiga effekterna av LEB i Ukraina, baserat på de nationella skogsorganisationernas perspektiv.

Åsikterna om införandet av LEB i Ukraina är vitt spridda bland respondenterna i studien. Generellt sett ser man tydligt att den privata skogssektorn är positivt inställd till den nya lagen, medan den statliga sektorn är starkt negativ. Detta resultat kom inte som en överraskning då Ukraina inte har någon privatiserad skog, vilket betyder att endast den statliga sektorn kan äga, avverka och exportera rundvirke. Nu när landet står inför en LEB behöver skogssektorn hitta en affärsstrategi som är anpassad efter detta nya affärsklimat för att lyckas. Dock visar resultaten prov på en väldigt långsam förändring, där de flesta företagen har valt att inte anpassa sig till den nya lagen. Detta på grund av politisk instabilitet och en osäker framtid.

I teoribildningen kring exportrestriktioner föreslås att en sådan borde leda till lägre timmerpriser på den lokala marknaden, på grund av ökad tillgång. Detta har inte hänt i Ukraina även om avverkningsvolymen är densamma. Istället har de statliga företagen, som säljer timmer, ökat de nationella priserna aningen. Därför har den privata process sektorn lämnats i en situation där dem önskar att köpa mer virke, samtidigt som priserna är för höga. Samtidigt förklarar de statliga företagen att deras timmer går till spillo eftersom de inte kan sälja allt på den Ukrainska marknaden.

Förklaringarna till dessa resultat verkar vara komplicerade och bör undersökas vidare. Under utförandet av denna studie har korruption lyfts upp till ytan av de flesta responderande, där de förklarat hur djupt korruptionen har sina rötter i landet. Fältresor, utökade intervjuer av forskaren till denna studie, tillsammans med Ukrainska forskningsartiklar, nyheter och professorer indikerar att det fortfarande pågår illegal export från Ukraina till Rumänien.

Nyckelord: Ekonomi, Korruption, LEB, Log Export Ban, Skogsbruk, Timmer, Ukraina

Preface

This paper is a Master thesis written by a student at the Master of Science in Forestry program at the Swedish University of Agricultural Science. The field study was conducted in western Ukraine, while the student lived in the city Lviv for two months. Sida helped to financially support the study by a scholarship, Minor Field Studies. For this I am deeply grateful and I want to send a big thanks to Sida for giving this opportunity to young students. In Lviv, I also had great support from the Ukrainian National Forestry University and I want to send a special thank you to my supervisor, professor Olena Maksymets and my co- worker, student Sophia Kolisnyk. Finally I would like to thank my supervisor at SLU in Uppsala, Anders Roos, Department of Forest Products, for the valuable guidance and support during the whole study.

Magdalena Olsson

Falun, August 2017

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1 Introduction

Ukraine is a middle-income country (World Bank, 2016), which has suffered from illegal logging and an undeveloped domestic processing industry. Illegal logging is defined as; “... *when timber is harvested, transported, bought or sold in violation of national laws*” (Fern, 2002; Brack & Hayman, 2001). It can decrease the national budget and lead to a reduction of economic and social benefits to a country (Hirschberger, 2008). Ukraine has put much effort into achieving sustainable forest management, but still illegal logging remain a serious issue. It has been estimated that during the period 1988-2007, the area affected by illegal logging was equal in size to the area that was logged by sanctions from the state (Kuemmerle et al., 2007).

A considerable share of legally and illegally cut forest volumes have been exported, mainly to neighbouring European and Western European countries. This ongoing harvesting of Ukrainian forests for export contributed to high prices and under supply of wood on the domestic market. As a result, the domestic wood-processing industry has been lacking raw materials of good quality for the last 20 years, which has contributed to financial problems and low profitability. This has led to the increase of unemployment in the industry, significant loss in profits and low motivation for investing into wood-processing equipment. Therefore a new law was signed by the Ukrainian parliament in 2015, which bans log export. This law is expected to reduce illegal harvesting, create improved business conditions for the local forest industry, which could create more jobs, and bring economic benefits for the country (Hirschberger, 2008).

Restrictions on the export of wood raw material is a tool that has been used before in many less developed countries to protect the domestic processing industry. However, it has been debated whether the law has had good effects or not and many analysts question the government's decision to implement this law in Ukraine (Mylovanov, 2015). This study is a first attempt to investigate the early effects of the Log Export Ban, further on called the LEB, in Ukraine.

1.1 Background

1.1.1 Ukraine's economy

Ukraine's economic situation has been under pressure since the breakup of the Soviet Union in 1991 and even if decisive reforms helped to stabilize it somehow, the conflict in eastern Ukraine 2014 hit hard and resulted in a huge economic crisis. In 2014 the GDP decreased by almost 7 % and 2015 was even worse with a decrease of 10 %. Also the wages decreased by as much as 13 % in 2015 and the rate of poverty (under 5 EUR/day) increased from 3.3 % in 2014 to 5.8 % in 2015. After this crisis the goal of the government has been to turn around the negative economic trend but still the fiscal consolidation has to be kept very restricted when it comes to wages, pensions and other social agents. This will of course affect the household purchasing power in a negative way. During 2015 many reforms with support from international community, such as EU, has helped in tries to stabilize the situation. These reforms include stabilization of the business environment, measures to make business more transparent and implement external control of financial disclosures. It was during this tough period in 2015 that the new law LEB was signed as a step to try to improve the economic situation within the forestry sector (The World Bank, 2016).

1.1.2 Forestry in Ukraine

Forest area

In percentage the forest cover in Ukraine is 15.9 % (Figure 1), which is low compared to most European countries. However, since Ukraine is the second largest country in Europe with its total land area of 60 million hectares, this corresponds to almost 10 million hectares of forests and Ukraine ranks on position eight out of all European countries in terms of forest area. Most of the forest is located in the western part of the country, mainly around the Carpathian Mountains (FAO, 2011). In these mountain areas the forest cover is as high as 42 % and 30 % of all forestland in Ukraine is located in, or around the Carpathian Mountains (Hensiruk, 2002).

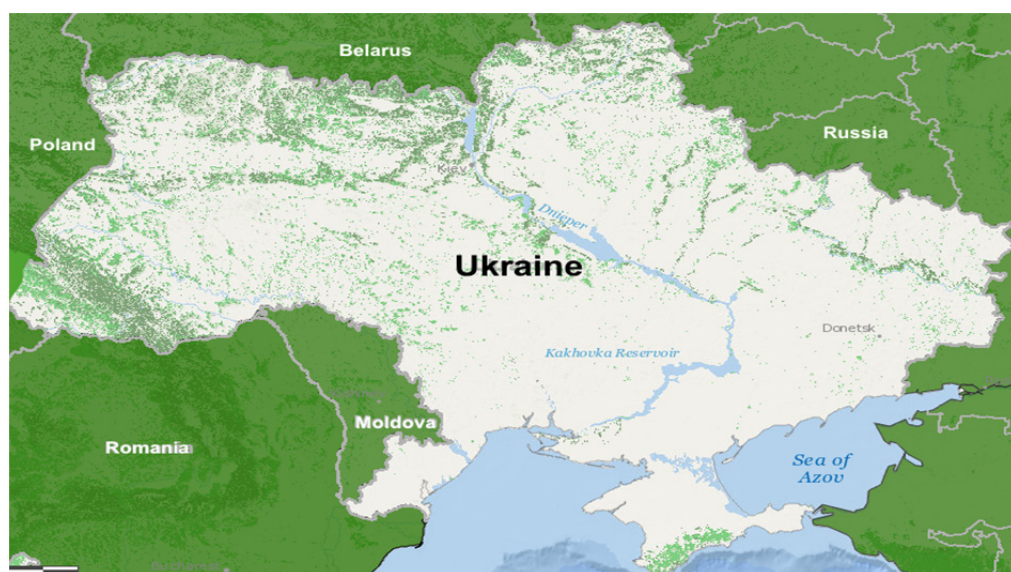


Figure 1. Ukraine's forest cover and neighbouring countries. Source: ArcGis (Magdalena Olsson, 17-03-2017).

There has been an on-going reduction of the forest area in the Ukrainian territory, mainly because of clear-cutting for farm- and cropland and still today open areas used for agricultural reasons dominate the landscape (FAO, 2011). The decrease of forestland stagnated in the mid- 20th century and ever since then the forests have slowly recovered (Figure 2) and today the total area with productive forests is almost 10 million hectares (SFCU, 2016).

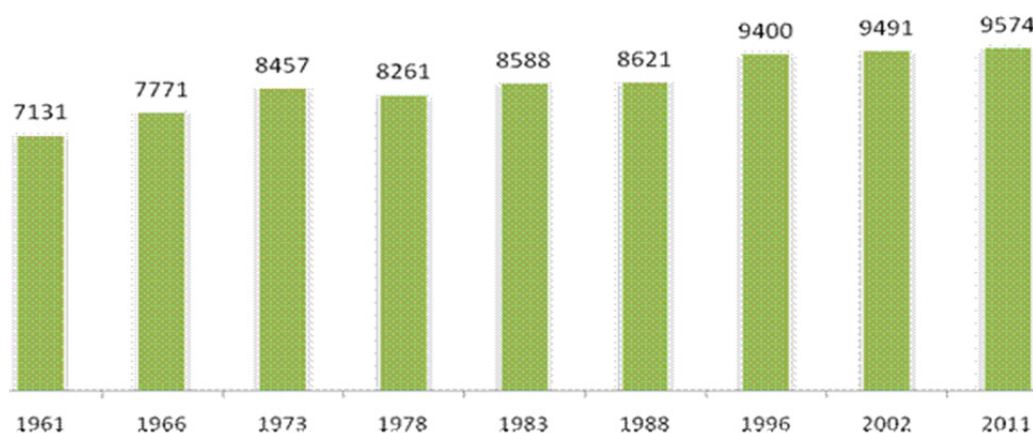


Figure 2. Forest area, shown in thousands of hectares, in Ukraine from 1961- 2011. Source: (SFCU, 2016)

Forest volume

Even if Ukraine lost much of its origin forests it still hold big areas of relatively undisturbed forests. These undisturbed ecosystems are mainly found in the Carpathian Mountains and they have a high biodiversity index. The Carpathians actually have the largest continuous still remaining stand of old beech (*Fagus Sylvatica*) forest in Europe. Beech is the 4th most common tree species in the country while pine, oak and spruce ranks higher. The total forest volume in Ukraine was estimated to be 2119 million (2.1 billion) m³ in year 2010, which is the latest available data. This ranks Ukraine on a sixth position in Europe when it comes to total biomass stock. 53 % of the volume consists of coniferous species and 47 % broadleaf species (Figure 3) (FAO, 2010).

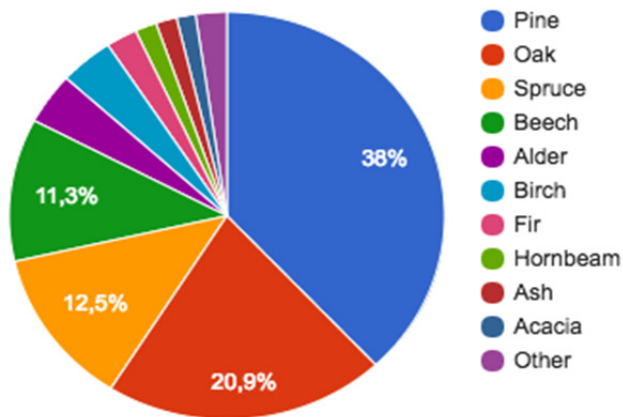


Figure 3. Total biomass stock composition in Ukraine year 2010. Source: (FAO, 2010).

Illegal activities

The total growing stock per year seems to still be increasing, but it is hard to know exactly with how much because of illegal cutting (Kuemmerle et al., in review). According to the State forest Committee of Ukraine (SFCU, 2014) the annual growth was about 1.9 million m³ in 2008 and at the same time the registered amount of harvested timber was about 1.3 million hectares. This number does only include the harvested volume that is planned by the state and not any illegal cutting. Because of illegal cutting it is difficult to find accurate numbers of harvested volumes. According to an article written by Kraynij 2008, the annual increment exceeds the annual growth with about 10% in the Carpathian Mountains (Kraynij, 2008).

Ukraine has made many attempts to try to battle illegal harvesting but the process goes very slow and some methods are more effective than others. Since the independence from the Soviet Union in 1991 (FAO, 2001), Ukraine has more than doubled the area of protected forestland (Nordberg, 2007) and due to this, clear cutting is prohibited in almost 50 % of all forests in Ukraine. However, it seems like the increased amount of protected areas has not helped Ukraine to reduce the amount of illegal harvesting. A study made by Kuemmerle et al., in 2007, based on remote sense data, shows that the amount of illegal logging is the same both inside and outside these protected areas.

Later the government took second means to try to improve the situation by increasing the surveillance of the forests and inserting harder punishments for breaking forestry laws. Also an electronic system to detect whether the timber is legally or illegally harvested has been developed. Each timber truck should be connected to this system and there should be a bar-code on every load of timber, which shows where this timber has been harvested. There are control stations along roads where trucks are being checked and this way the police can know

if the timber has been legally harvested. It seems like this system has been more successful than the earlier ones, because after this system was inserted the amount of illegal harvesting has decreased significantly (Figure 4) and from year 2004-2013 the amount of illegally harvested timber volume has halved (SFCU, 2015).

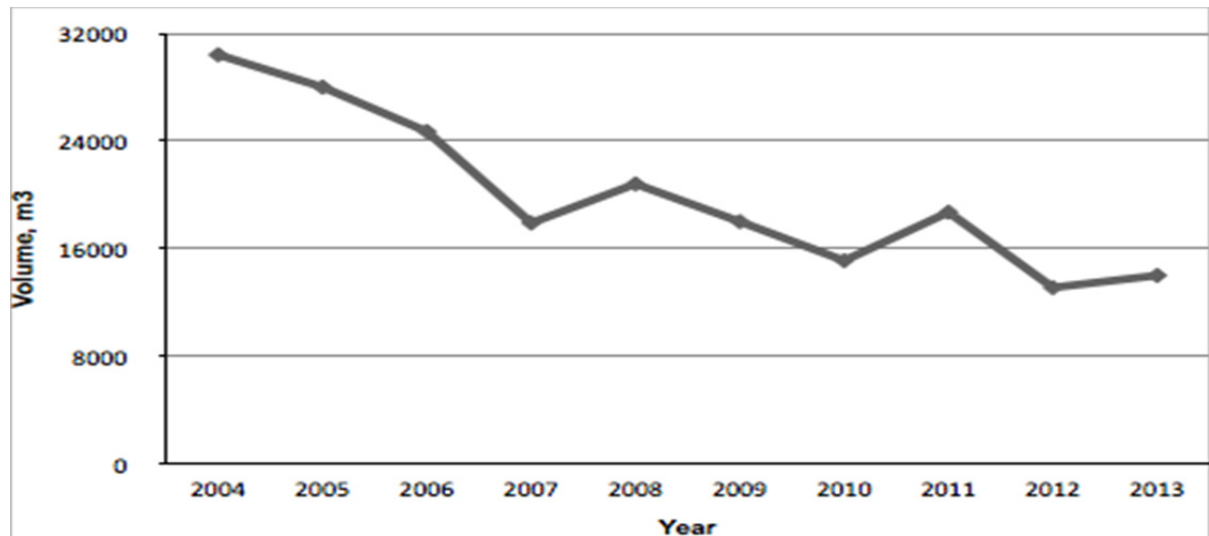


Figure 4. Illegally logged forest volume in Ukraine between 2004- 2013. Source: State Forest Committee of Ukraine (SFCU, 2015)

Even if there has been a decrease of illegal activities the problem is not by far gone. 14 000 m³ of illegally cut timber per year is still considered as unacceptable and it has huge negative economic effects within the Ukrainian forestry sector (SFCU, 2015).

Certification of forests

Certification of Ukrainian forests has been increasing drastically since year 2001 (Figure 5), with a significant increase in 2015. This is mainly a result of demand from customers abroad, which require a certification in order to buy the timber. 77 % of the forests are now FSC certificated and the rest consist of national certificates (State Forest Committee of Ukraine (SFCU), 2015).

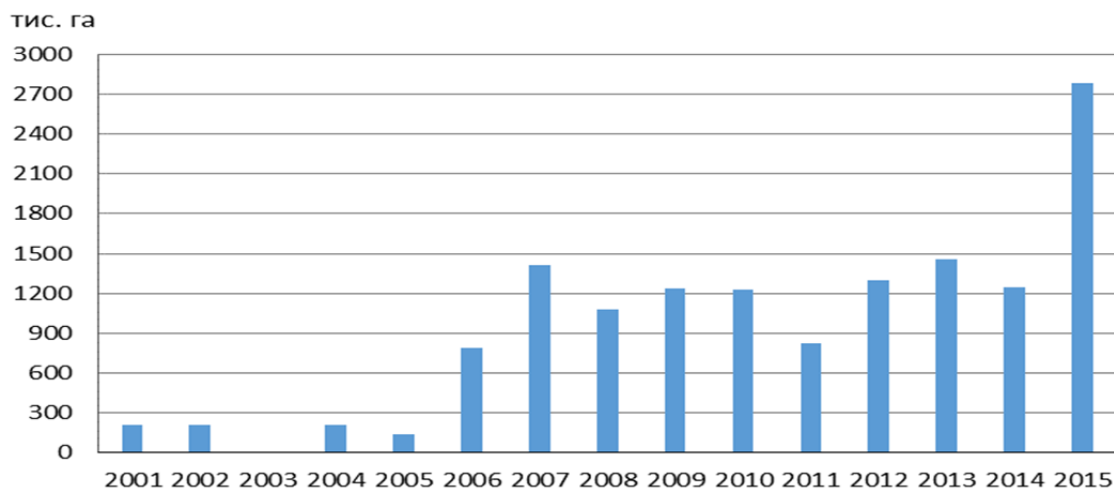


Figure 5. How many thousands of hectares of forest that is certificated in Ukraine. Source: State Forest Committee of Ukraine (SFCU, 2015)

The certificated forests are located in the western part of Ukraine. This area holds most of Ukraine's forest (Figure 6) and it's also the focus area of this study (SFCU, 2015).

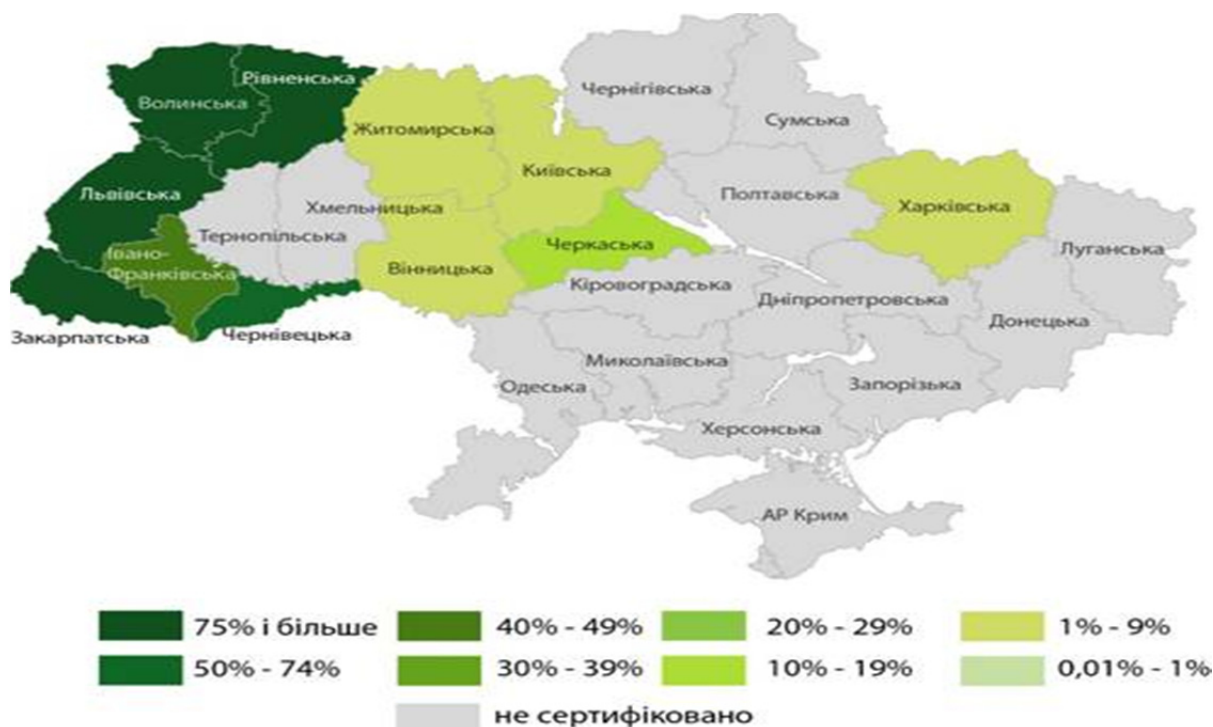


Figure 6. Percentage of certified forest in each region. The darkest green has 75 % or more certificated forest and the grey regions have no certification of forest at all.

In total 26.8 % of all forestland in Ukraine has some kind of certification (State Forest Committee of Ukraine (SFCU), 2015).

1.1.3 The forest industry

Just as other countries in CEE (Central and Eastern Europe), Ukraine has throughout the past decades been going through a transition from communist system to a democracy with market economy. A change within the forest policies begun after the independence from Soviet Union, but the transformation is not by far over and there is still no privatization or decentralization within the administrative and financial forest sector (Ihor et al., 2009). Ukraine's forest management has been kept highly centralized where policies and management is mostly handled on ministry level (Soloviy & Cubbage 2007). There are no privately owned and managed forests and the forestland belongs to the state, the military or state owned schools. This basically means that the state forest enterprises have a monopoly on forest harvesting and sales.

The forests are managed by the State Forest Committee of Ukraine, which manages about 300 state forestry enterprises and specialized forestry and hunting offices. The ownership structure is divided based on Ukraine's geographical regions and cities with the head office located in Kiev. Every one of Ukraine's 24 regions has a "Regional Department of Forestry and Hunting" office, which is responsible for management of the forest in this region. Then there are smaller offices located in cities and villages, called "Forestry State Enterprises". They get directions from the regional offices on how to manage the forest around their office. Every one of these state companies has their own area of forest that they own and manage with directions from the main office in Kiev (State Forest Committee of Ukraine (SFCU), 2016).

Even if all forest is owned by, either the state, the military or schools, there is an emerging private market in the forest sector that includes logging and transportation services. However, still many of the state owned enterprises try to manage, harvest, transport and sometimes even process their own forest, which leaves the private companies in a disadvantaged situation. The price of timber in Ukraine is mainly based on supply and demand, however the state companies have the power to control the price, since there are no private competitors on the national market (Vrublevska, 2006).

For many years, a big share of the Ukrainian timber has been exported and according to the World Bank (World Bank, 2016), Ukraine exported wood products to a value of over 2.2 million EUR in 2014. Some researchers mean that this large amount of export has had a negative impact on the development of the national wood- processing industry due to lack of raw material. The reason why such a huge amount of timber has been exported is simply because the prices are higher on the international market and it has therefore been more profitable for the state companies to sell their timber abroad. Another explanation is that neighbouring countries, such as Poland, Slovakia and Romania stopped with industrial logging in the Tatras and Carpathians. Moreover, companies in Hungary, Romania, Austria and Slovakia that buys timber from Ukraine, receive state support in their own countries for import of Ukrainian logs through subsidies (Angelstam, 2006). This opened up for a debate in Ukraine concerning if this timber export was really economically profitable for the country and that it could lead to over harvest of the national forests.

1.1.4 The Log Export Ban

Export restrictions are inserted due to a numerous of different reasons, such as environmental protection, controlling of inflation, improving downstream domestic processing industries and fiscal reasons. It can be inserted in many different shapes, where an export ban is the most extreme case out of all exports restrictions. Other, more common and less radical forms of export restrictions are export taxes, minimum export prices and export duties. Ukraine chose the most radical method and inserted a log export ban. Since it forbids all exports of the certain product it is hard to get quantitative measurements of how an export ban affects a country. Some tendencies from results of earlier export bans can be observed, however the result of a ban tend to vary a lot depending on each country's situation (Kim, 2010).

The Log Export Ban, further on in this essay called the LEB, is a law that forbids export of logs, where the aim is to conserve the national forest cover and contribute to an increase in the national economic development (Bran, 2002). The law only forbids export of primary forest products (logs), which means that the country will be given a chance to develop its own national wood-processing industry for exporting of secondary forest products (Kishor et al., 2004).

The reality is usually more complex than what theories suggests and for the last 30 years it has been vigorously debated whether or not an LEB is an effective tool and if it really achieves its twin goals, improving both the environmental and economic situation within a country. Some researchers have suggested that in extreme cases, such as the insertion of an export ban, the economic market of less developed countries will not behave the same way as the typical market of a developed country (Kim, 2010). This means that the typical expected outcome of an LEB might not be the case in Ukraine, which is considered to be a lower middle-income country (World Bank, 2016).

The LEB or similar export restrictions has been implemented in many other countries before and Indonesia is probably the country that has most experience. There an LEB was implemented two times, in 1980 and 2000 (Budy & Arief, 2006). Foregone export earnings due to the log export ban in Indonesia was between 1.8 billion to 3.1 billion EUR between the years 1981- 1986. This calculation is made based predictions on how the situation would have been without inserting an LEB (Lindsay, 2006).

Russia also has experience of export limitations where they inserted a tax on log export in 2007. The tax reached a level of 25 %, or a maximum of 15 Euro per cubic meter in 2008 and the plan was to increase the tax to 80 % in 2009, although this never happened. The purpose of this tax imposition in Russia is comparable with the situation that this research investigates in Ukraine, to lower the price of timber on the national market and thereby create national value- added. When looking at the case of Russia most studies indicate that an export tax of 25 % on timber is too high to create a value- added to the country and it may also be socially undesirable (Khramov et al., 2008). Khramov et al., also suggest that the optimal export tax for Russia would be 11.5 % if the market elasticity for demand of timber by neighbouring countries would be -1.16. Ukraine has in contrast to Russia implemented a total ban of log export and the question is how this will affect the Ukrainian market.

Even though there is no real proof that an LEB is a successful tool, it has been implemented, mainly in developing countries and middle-income countries during the 19th century (Goodland and Daly, 1996). On April 9th 2015 the Ukrainian parliament signed the law, LEB, and it was decided that the moratorium would be imposed for a period of 10 years, starting for all logs, except pine, on November 1st 2015; and for pine logs starting from January 1st 2017. The expectation was that an LEB would increase the national economic profit within the whole forest sector in Ukraine. For forest state enterprises in Ukraine, export of timber has been the main source of income for the past 20 years. From November 2015 when the LEB came into force, the governmental forest companies in Ukraine has not been able to export their logs. Now the Ukrainian wood-processing industry is poorly developed and it is necessary to work out incentives for investing into manufacturing of higher value-added products (Mylovanov, 2015).

The decision about imposing an LEB in Ukraine came from the parliament and the news was released in April 2015. The decision was based on a voting among deputies, where the law had to be favourably voted by a minimum of 226 deputies. The outcome of the voting showed that 233 deputies voted in favour of imposing an LEB. According to Igor Sobolevsky, the head of Association of Woodworking and Harvesting Enterprises of the Western Ukraine, the main incentive for imposing the ban was a lack of raw material within the national processing sector, which forced many units to stop their production. Moreover, as a result of this the unemployment increased. Ivan Ivanishin, the deputy head of the same association commented that it is not sustainable to export unprocessed wood, while importing processed wood products, when Ukraine has the ability to process the goods themselves (Fordaq, 2015).

The Ukrainian parliament promised that the LEB would be inserted together with another law, which reduces taxes for importing of wood- processing equipment. This would give the domestic processing companies a chance to invest in equipment to start with secondary processing of wood. Although, this new law never came into force and the taxes for importing processing equipment remains at a level of 10- 20 %. This left the processing sector with an LEB and no fair chances to buy equipment to start with secondary production (EFTA, 2016).

The Ukrainian parliament implemented the LEB in hopes of achieving its two goals of conserving the forest cover in the country and developing the national economy. This was made despite results of studies for the past two decades showing that the effectiveness of an LEB might not be good, and an LEB can sometimes have the opposite effects for a country. The LEB through the case of Indonesia shows that an LEB has not been effective in the short-term, where it has actually lowered the country's GDP and workers' income. Although, studies have shown that the LEB in Indonesia might have positive effects in the long-term, when the national processing industry has been developed and can start making up for the loss of exporting of round wood. Some studies also show that this fast growing national processing industry can have bad effects, such as too intensive harvesting where they have to harvest more forest in order to supply the new industry (Resosudarmo and Yusuf, 2006). The long-term effects of an LEB has not yet been proved by any study and nor will this study show any long-term effects. The short-term effects have been proved to vary depending on each country's situation and therefore this study will investigate the early effects through the case of Ukraine. Despite other studies of LEBs showing some negative tendencies, Ukraine has decided to give the LEB a try in hopes that it will have positive effects on the country and its forestry sector.

1.2 Purpose of the study

The aim of this study is to investigate how the LEB has affected the green supply chain within the forestry sector in Ukraine. Trying to detect macro environmental factors that change with the LEB and can affect the forestry sector, will do this. It will for example be interesting to see how a decrease in income from export operations for Ukrainian forest state enterprise is going to influence prices and demand on the domestic market. The study will also show how forest companies have perceived the changes and the business conditions. This will affect the potential of the Ukrainian wood based industry to implement competitive and sustainable wood based value chains and industry processes. To capture all necessary information for the aim of this study, research questions have been developed. The topics of these research questions have been LEB, knowledge, effects, strategy and expectations. The aim is that they will help to investigate **whether or not the LEB is an effective tool to combat over harvest, illegal harvesting and an undeveloped national processing industry.**

2 Theoretical framework

In this part, the theoretical view of the study will be described closer to give a better understanding of the final result. This material will make it easier for the reader to analyse the impact of the LEB through the case of Ukraine. The results from the interviews in the study will be analysed with help from models, which will be presented and described in this chapter. The model used to describe and analyse the result is a PESTLE- model. This model together with economic theories has laid out the structure for the data collection and presentation of the results. Finally the development of the research questions will be described and connected to the model and theories.

2.1 Models

2.1.1 PESTLE- model

The main model used to present and analyse the results in this research is called the PESTLE-model. It is used to analyse what macroeconomic factors that affects the companies in a business environment. The model is based on the six macroeconomic factors in Figure 7 and is named after the first letter in each factor.

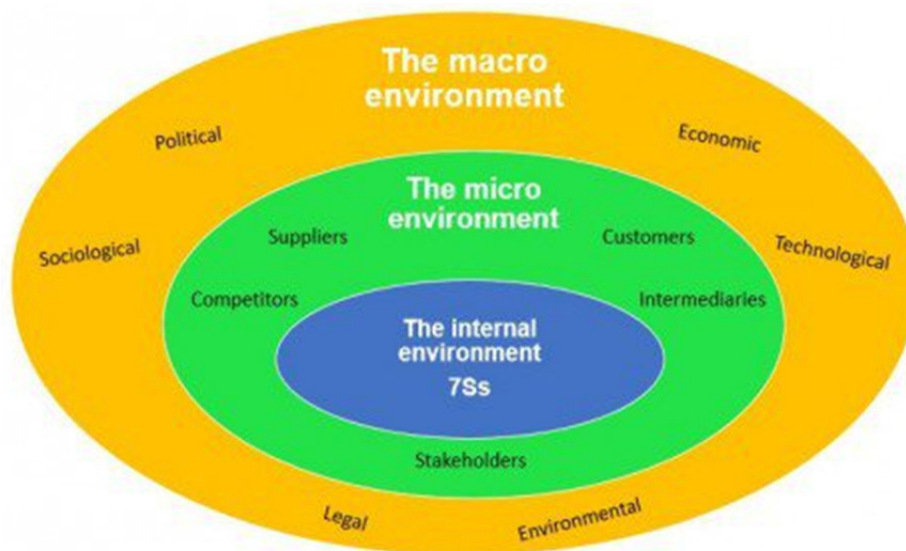


Figure 7. A business environment, where blue represent an organisation. The six factors in the PESTLE- model are included in the macro environment (Terry, 1977).

Changes in the macro environment, such as implementation of an LEB, can have different impact on organisations operating in it. If we detect these changes it can help us to analyse what business strategy the companies should have when they need to adjust to the LEB. Since the data in the research is based on interviews with companies affected by the LEB, the PESTLE- model is a suitable model to use when the data is being analysed. It may advantageously be used to understand market growth- or decline, business position and the potential for the organisations (Terry, 1977). The factors included in the PESTLE- model are:

Political factors can be pressure on the organisation brought by political institutions.

Economic factors, such as economic growth, inflation- and exchange rates. These are factors that can all be affected after insertion of an LEB.

Social factors include health, occupation, attitudes in the community and safety.

Technical factors are research- and develop activities, automation, innovation and speed of transformation to suit the new situation.

Legal factors include regulations and laws that are applied or planned in the future.

Environmental factors are the ecological and environmental aspects and can affect the demand for the organisations product. In the forest sector, certification is one factor.

In this paper, the economic factors will be mostly in focus, since it aims to investigate the economic effects on the forest sector, based on the organisations that have been interviewed. There are many economic theories suggesting what might happen after implementing an export restriction like an LEB in a country.

This PESTLE- model will suit to analyse the data collected through interviews in this research especially good because it captures a wide range of aspects when it comes to the impact of the LEB. The LEB itself can be seen as both a political and a legal factor and in this study it is considered to be a legal factor, since it is now written in the Ukrainian law. The aim when using a PESTLE- analysis in this research is to investigate which of the above-described factors that are affecting the organisations and in what way. To be able to do this when conducting a PESTLE- analysis, certain questions have been developed to capture factors in each one of the six aspects within the model. These questions are just used as a help to try to detect the crucial factors in the result of this research. The questions developed for this specific PESTLE- analysis are:

- How does the political situation in Ukraine look like and in which way could this affect the forestry sector?
- Which are the main economic factors that are affected by the LEB?
- Does the culture in Ukraine have any impact when it comes to the effects of the LEB on the organisations in this business market?
- What technological innovations has come or is expected to come as a result of the change in business environment that an LEB causes?
- Is there any legislation that affects the industry or is the legal situation expected to change in some way?
- What environmental concerns seem to be worse or improved after insertion of the LEB?

The research questions were developed with this as a base to make sure all aspects of the LEB were captured. Although, the research questions are more distinct in order to capture some exact data that can be measured and some deeper thoughts from the respondents.

The implementation of an LEB means indubitably a big change of the business environment for all forest- related companies in Ukraine. The questions asked in the interviews have aimed to capture some of the most important business factors that have changed from the organisations perspective. When presenting the results based on the PESTLE- model, the structure will follow the six main subjects included in the model; Political, economic, social, technological, legal and environmental. Every section will consist of the most relevant results

based on the information given by the interviewed companies that reflects to the aim of this study. Different questions from the interviews belong to particular areas within the PESTLE-model and the answers will be presented under the suitable section.

2.2 Economic theories

The two main objectives a government has when they insert an LEB are usually to improve both the economical- and environmental situation in the country (Vincent, 1992). To be able analyse the early effects of the LEB in Ukraine it is an advantage to first look at what the theories suggests. Below are different theories connected to this research described to give the reader an understanding of the framework for this study. These will be used as guidelines when analysing the results and presenting them with help from the PESTLE- model.

2.2.1 Supply and demand

One of the most fundamental theories of any market economy is supply and demand and it is what creates trade of a certain product. Trade in its turn creates welfare and more job opportunities for a country. This theory is important in order to understand the results of an LEB, since all kind of export restrictions have influence on the supply and demand curves. Supply in the case of this research is how big volume of logs Ukraine is producing and demand is how big volume the customers are willing to buy. Both supply and demand depends on price and quantity. The demand curve has a negative connection between price and demanded quantity. This is because consumers buy more of the product if the price decreases and less if it increases. The supply curve has a positive connection between price and supplied quantity. This is because producers produce more of a product when the price is increasing and less when it is decreasing.

When the demand- and the supply curve are coinciding, market equilibrium is reached and we have something called equilibrium price for the product (Figure 8). This is a condition where the economic forces connected to a certain product are in balance between supply and demand, including the price of the product at that certain time. In other words it's being produced exactly as much as demanded for that certain price (Eklund, 2010).

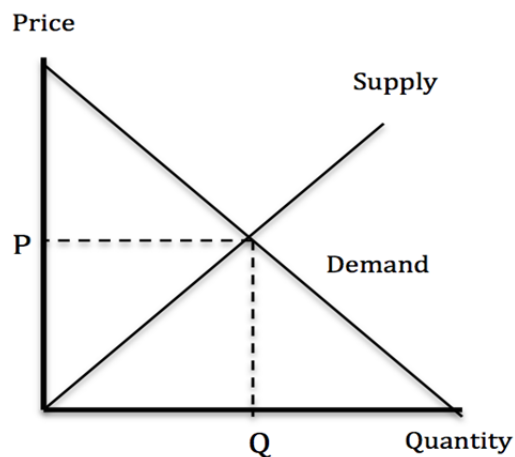


Figure 8. Supply- and demand curve and the point where they coincide, called market equilibrium or equilibrium price.

2.2.2 Export restrictions- equilibrium model

According to Organisation for Economic Co-operation and Development (OECD 2010), an export restriction will in theory lead to that inflation will be kept under control and it should

stabilize the domestic price of the certain product. This will in turn increase the supply on the domestic market.

One purpose of an LEB is to prevent the roundwood from directly leaving the country and this way give the domestic industry a bigger chance to buy timber. With the LEB the domestic industry does not have to compete with the international market in terms of price. In lower middle class countries, such as Ukraine, the prices on the local market are usually low if there is no international competition (Bran, 2002). An important economic theory to look at when it comes to implementing of a log export ban is Supply and Demand and to estimate what is expected to happen with supply and demand when a log export ban is inserted in a country. The best way to answer this is by creating a **Computable General Equilibrium Model (CGE model)**, looking separately at the logging- and processing industries (Eklund, 2010).

Before the LEB was inserted in Ukraine in 2015, the equilibrium model for supply and demand curve of timber was based on both domestic and international demand. After an export ban is inserted, the equilibrium model is suddenly based exclusively on the domestic demand. In theory, an LEB is expected to change the supply and demand in a way that will favour the processing industry within the country. This can be described by showing how the equilibrium of supply and demand changes after inserting an LEB. The forest sector can be considered to consist of two parts, the logging sector and the wood-processing sector (Kishor, 2004). Note that the logging sector can be seen as only the governmental companies in Ukraine, since there is no privately owned forest. The processing sector consists mostly of private companies, but there are also governmental companies that conduct some processing. The left figure below describes the logging sector, where P_0 is the international price for logs and Q_0 is the produced amount of logs by the specific country. QD_0 shows how much that is being sold to the domestic industry before the introduction of a LEB. The right figure describes the wood- processing sector, where the price PQ_0 equals equilibrium at QQ_0 . When inserting an LEB the price goes down to P_1 and the demand on the domestic market increases to QD_1 , which is lower than Q_0 but higher than QD_0 . In other words, the total demanded volume decreases but the domestic wood- processing industry is now willing to buy more than before the LEB. For the logging industry this leaves a total welfare loss that equals the size of the A triangle. Although in the processing sector this cheaper price will change the supply curve and leave a welfare gain that equals to the size of B, C and D. The overall result would give a small loss in the logging sector, but a much larger gain in the wood- processing sector (Resosundarmo & Yusuf, 2016).

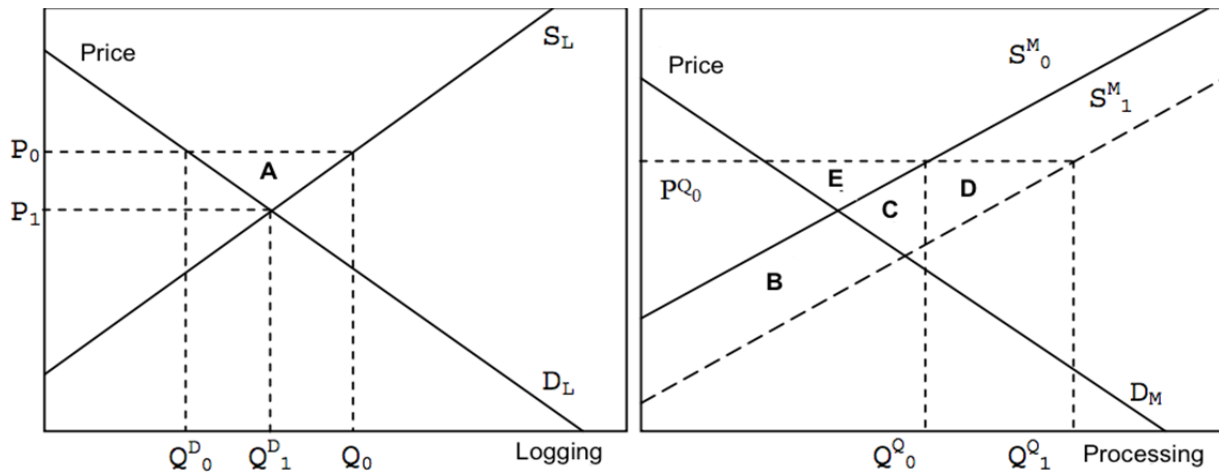


Figure 9. Equilibrium models of how supply and demand changes for the logging sector and the wood-processing sector.

So according to theory an imposition of an LEB might be disadvantageous for the logging sector, but advantageous for the processing sector (Eklund, 2010). This case is based on a reality where nothing else than supply and demand would change the economic conditions within the forest industry, after initializing an LEB.

2.2.3 Trade theory

Trade theory can be used for different purposes and one of them is to evaluate policies connected to trade, such as an LEB, if it seems to be effective or not. International trade is created because of variations of productive factors in different countries and this in turn creates price differences for the same product from country to country. This difference in price for the same product is the main force of international trade and in the case of Ukraine their price on logs is generally lower than in most surrounding countries (UNECE, 2016).

The advantages of international trade are many and trade theories tend to favour free trade, without barriers such as an LEB. This is because each country can focus on the products that can be produced most efficiently in their country and then buy things from other countries that they produce cheaper or more efficient. When looking at what trade theory suggests through the case of Ukraine and the insertion of an LEB it is necessary to investigate if other, mainly surrounding countries are more efficient or has a lower cost when it comes to processing of wood (Andersson et. al. 2003).

Trade theory is highly relevant in the case of an LEB in terms of its effectiveness or lack thereof. Therefore it is an excellent theory for analysing the results in this study, meaning the organisations answers of the research questions. The main objectives of trade theory that has been in focus when conducting this particular study are:

- Timber prices
- Labour costs
- Processing industry

These factors based on trade theory will help to fulfil the aim of this study in such way that it can suggest whether or not an LEB has been a successful tool for Ukraine. The results of this study will be presented based on the PESTLE- model and trade theory is an effective tool when developing and analysing some of the results.

2.2.4 Porter Generic Strategy

After analysing how the external market has changed as a result of the LEB with help from a PESTLE- model and trade theory, it is important for the organisations operating in the business environment to evaluate its internal environment. This is because, in order to conduct a successful business, it is necessary to adjust to the new market and try to find competitive advantages. This can be done with help from a theory developed by Michael Porter, called Porter Generic Strategies. It can be used to help an organisation to know how they can use their resources in the most efficient way and how to meet the client's needs (Monahan & Rahman, 2011).

According to Porter's model, a company can have three different business strategies to succeed in a business environment. He means that if a company chooses one of these strategies it will get competition advantages on the market. These three strategies are:

- **Cost leadership**, meaning that the company strives to have the cheapest products and services on the market.
- **Differentiation**, where the company chooses to develop rare products that the customers are willing to pay more for.
- **Focusing**, where the company chooses one niche on the market to focus on.

It is important to only choose one of these strategies and not try to implement a mix of them. If this is done, the company get “stuck in the middle” (Figure 10), which, according to Porter, is not a successful business strategy that does not lead to any competition advantages on the market.

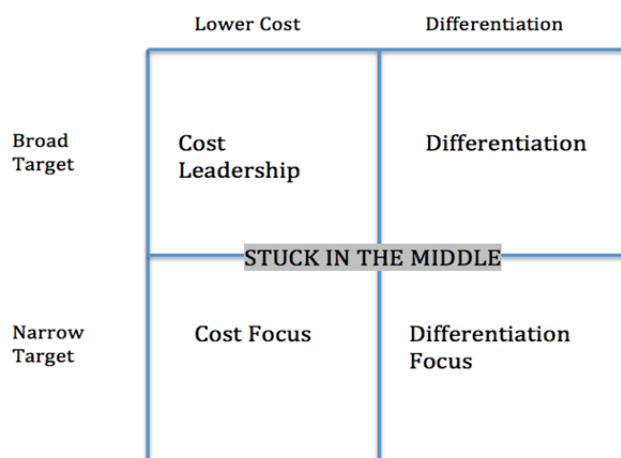


Figure 10. Showing Porter's three different business strategies and the scenario called “Stuck in the middle” (Murray, 1988).

The Porter model will not be used to analyse every organisation in this study, but rather to evaluate what business strategies that can be useful in Ukraine for different organisations after the change in business environment caused by the LEB. It will be used as a tool to help evaluate what business strategies the companies have and how good they seem. There are some questions in the questionnaire that aims to capture what plan and strategies the companies strive for in the future. This data will be analysed with the Porter- model and in the results it will mainly be presented as a comparison between strategies between private and governmental companies (Murray, 1988).

2.2.5 other theories and models

There are other models that could also be used when analysing the result of this research and the ones that has been considered are:

- The Pressure State Response Framework
- SWOT- analysis

The Pressure State Response Framework can help to analyse what happens to an organisation and its surrounding environment when it is exposed to pressure of some kind. It can be used to analyse how the organisations act and respond to the pressure (OECD, 1993). The insertion of the LEB definitely creates pressure on most forest- related companies in Ukraine and therefore this model could be used to analyse how the organisations respond to the pressure. Although, this model was seen as less suitable for this specific research because it captures a narrower picture than the PESTLE- model. The Pressure State Response Model only captures direct effects on the organisations caused by the LEB, while the PESTLE- model captures aspects in the whole business environment that all interact with each other (Wolfslehner & Vacik, 2008).

A **SWOT- analysis** could suit the intended study, where strengths and weaknesses are usually internal in the organisations, while opportunities and threats are usually external (macro) factors. The external factors (opportunities and threats) included in a SWOT- analysis are already captured by the PESTLE- model. The PESTLE- model gives an even deeper picture of external factors than the SWOT- model, which means that it would not bring any extra useful information for the study. The internal factors in a SWOT- analysis could be useful for each organisation in order to analyse how they best adjust to the LEB. Although, the Porter Generic Strategy model is used in this study to detect what business strategies the organisations have and should strive to have. A Porter model is seen as the better choice because it goes deeper in terms of what strategies there are and how they can be implemented. A SWOT- analysis only detects strengths and weaknesses, but does not give any suggestions on strategies (Pickton & Wright, 1998).

The four theories used as guidelines when analysing the results in this study are Supply and Demand, Export Restrictions, Trade Theory and Porter Generic Strategy. These theories can be connected to the research questions that have been developed for this research.

2.3 Development of research questions

The questions are, just as in any other research, developed in order to fulfil the aim of the study in the best possible way. The researches started by studying background literature on the subject, then pointed out the information gaps, which the study aims to fill. When this is done it is easier to develop questions that will capture this missing information. The research questions have been developed based on the models and theories described in the previous chapter and the results will be presented based on the six categories in a PESTLE- model. Each question can be connected to one or more economic theory and to one or more of the six categories included in a PESTLE- model. Below is a table called “The red thread”, which is used to give the reader a better understanding of the point with each research question (Table 1).

Table. 1. The interview questions developed for this research, what subject it belongs to and which theory/ model it connects to. (NOTE: Interview questions can be found in Appendix 1)

| Research question | PESTLE category | Connecting theory/ model |
|--------------------------|------------------------------------|--|
| IQ 1 | Company description | |
| IQ 2 | Company description/ Technological | |
| IQ 3 | Environmental | Supply and demand |
| IQ 4 | Legal | Trade theory |
| IQ 5 | Legal | Export restrictions |
| IQ 6 | Economic | Export restrictions/ Porter Generic Strategy |
| IQ 7 | Social/ Technological | Porter Generic Strategy |
| IQ 8 | Political/ Environmental | Supply and demand |
| IQ 9 | Economic | Export restrictions- equilibrium model |
| IQ 10 | Legal | Trade theory |
| IQ 11 | Economic | Porter Generic Strategy |
| IQ 12 | Legal | Export restrictions- equilibrium model |
| IQ 13 | Political | Porter Generic Strategy |

Every question captures a knowledge gap that the researcher has pointed out and together the questions will capture enough information to fulfil the aim of this study. After the interviews had been completed, the thoughts and opinions from the representatives of the organizations from the interviews have been studied and analysed with help from literature and the chosen theories and models.

3 Methods and material

When initializing a study it is important to choose a suitable method for collecting and analysing the data. The method can either be qualitative or quantitative, and it is not always clear which method will suit the intended study the best. When choosing a method it is important to know that there is no right or wrong choice, but it is a matter of which method will be most suitable for the particular study and its main goals. A quantitative research with quantitative data can be described as data in form of numbers, which answers the question “*how many*”? Qualitative data is not in form of numbers (usually words) and answers the question “*how*”? (Punch, 2014).

In empirical studies, usually one method that is thought being the most suitable for the research is used and then the data collection is done based on this. But does it really have to be a choice between either a quantitative or qualitative method? Researchers have found that in order to improve the analytic power of a research it can be preferred to use a mixed-method technique, where qualitative and quantitative methods are combined. The idea of using a mixed-method research is that the human phenomena in, for example an interview, is very complex and with a mixed-method the research can capture a wider and deeper picture (Sandelowski, 2000). That is why a mixed- method has been chosen for this particular research.

3.1 Sampling process and population

Before the field study begun, the researcher made literature studies on the subject. This included mostly articles about Ukraine’s forestry sector, but also older studies from export restrictions in other countries. This gave a good knowledge base to help the researcher define the case that needed to be studied, choose data collection- and analysing method. Since the aim of this study is to investigate how the new law, LEB, affects the forest sector in Ukraine, it was preferred to interview different kind of forest related organizations.

As mentioned earlier, only governmental companies in Ukraine own forest and the private companies have no own forest. This puts governmental and private companies in very different positions when it comes to the implementation of a Log Export Ban, where the private companies can only operate in the processing sector, while the governmental companies can operate both in the logging- and processing sector. The study is conducted by collecting views from respondents representing both governmental and private companies in the western part of Ukraine.

The interviewed organisations also differ in terms of main area, and together they represent the export industry, logging sector, wood processing industry and forest- related research organisations. Since the LEB can be expected to affect the whole forest sector in Ukraine in different ways, this wide range and variety within the sampled population is believed to be an advantage when conducting a high quality research. This way the study will capture the effects of the ban from many different perspectives.

3.1.1 Sampling process

The **organisations** chosen for this research were selected both by random sampling and purposive sampling. Random sampling is a method where the selection of population is made randomly and the researcher does not have the power to choose itself. Purposive sampling is a method where you actively choose the population in order to suit the intended study. Since it was desirable that this study would include different kinds of forest- related companies in

Ukraine it was necessary to use purposive sampling. Especially since, otherwise it would be hard to get private companies to be included in the study. Associate professor, Olena Maksymets and the Ukrainian student, Sophia Kolisnyk, made the purposive sampling. They contacted organisations that they were familiar with, searched on Internet and called around to ask if the company was willing to do the interview.

The reason why the sampling process can also be seen as partly random is because some organisations said no to interviews and was taken away from the study. Also when driving around in western part of Ukraine, the researchers stopped whenever they could find a forest related company to ask if they were willing to conduct the interview. Sophia Kolisnyk, who spoke Ukrainian, asked people on the streets if they knew about any forest- related companies. Due to these circumstances the researcher did not choose the entire population but it was collected randomly.

When choosing **respondents** from the organisation it was desirable to interview the person that is most knowledgeable of the company, preferably the head of the company. To achieve this, the selection of respondents was not made by random sampling, but by purposive sampling. Purposive sampling is preferable in studies where you need to actively choose the respondent in order to suit the aim of the research. This means it is a non-random sampling method, where the researcher decides what qualities is needed by the interviewed person and then actively tries to find a person with these qualities that is willing to conduct an interview (Lewis & Sheppard, 2006).

In some cases during this research it was impossible to interview the manager because of different circumstances and in these cases the most suitable person in the office was interviewed. The representatives from the companies that has been interviewed consists of managers, vice managers, financial managers, chief engineers, chief forest men and manager of international relations. The most common respondents were, as desired, managers, which were interviewed in nine out of the 18 interviewed companies. In some of the interviews more than one respondent was interviewed, because different employees had knowledge about different areas within the study.

3.1.2 the organisations

A total number of 18 organisations have been interviewed during the period April- May 2016 in the western part of Ukraine. Six of the interviewed companies are private and twelve are governmental. The reason why mostly governmental companies has been interviewed is simply because it was hard to find representatives from private companies that were willing to conduct an interview. Also there is a lack of private wood processing companies in Ukraine, which is one of the reasons to why they insert the LEB in the first place. Many of the private companies were not willing to let any outsiders come in and ask questions about their business. The governmental companies in this study belong to different levels within the Ukrainian State Agency of Forest Resources (main national forest office in Kiev). Regional Forestry and Hunting offices are responsible for the state owned forest in each Region and Forestry State Enterprise offices are smaller companies that operate in and around particular cities and villages. The size of the interviewed companies differs a lot and the number of employees varies from 8-2850 persons (Table 2).

Table 2. Description of the organisations interviewed in this study. The first six marked with grey are private and the remaining 12 are governmental companies

| Organisation name | Ownership | Main business | Employees |
|--|--------------|--|-----------|
| Timber Processing LCC | Private | Processing of wood | 8 |
| PPV Knowledge networks | Private | Development of it- business systems within forest sector | - |
| Trans Polissya | Private | Processing of wood | 8 |
| Woodland Ukraine | Private | Processing of wood | 70 |
| ENO Furniture LTD | Private | Furniture production, IKEA | 805 |
| Nello Nova | Private | Furniture production | 53 |
| Zhovkiv Forestry State Enterprise | Governmental | Forest management | 214 |
| Rava- Ruska Forestry State Enterprise | Governmental | Forest management | 165 |
| Bibrka Forestry State Enterprise | Governmental | Forest management | 125 |
| Drogobych Forestry State Enterprise | Governmental | Forest management | 346 |
| Sambir Forestry State Enterprise | Governmental | Forest management | 115 |
| Starij Sambir Forestry State Enterprise | Governmental | Forest management | 120 |
| Tsyman Forestry State Enterprise | Governmental | Forest management | 192 |
| Kivirtsi Forestry State Enterprise | Governmental | Forest management | 156 |
| Lutsk Regional Department of Forestry and Hunting | Governmental | Forest management | 2850 |
| Ivano- Frankivsk Regional Department of Forestry and Hunting | Governmental | Forest management | 2600 |
| Berehomets Forestry State Enterprise | Governmental | Forest Management | 750 |
| Zakarpatska Regional Department of Forestry and Hunting | Governmental | Forest Management | 34 |

Together these companies represent a sample of the forest sector in western part of Ukraine and they constitute the base for the collected data in this research. They are all located in the five most western located Regions in Ukraine; Volyn Region, Lviv Region, Zakarpatska Region, Ivano- Frankivsk Region and Chernivtsi Region. As mentioned in the introduction of this paper, Ukraine's western part holds most of the country's forest and therefore it was suitable to interview companies in this part of the country. Below all the interviewed companies are mapped to show the geographical spread of the collected data for this research (Figure 11).



Figure 11. Map showing where the interviewed companies are located. Green symbols represent governmental companies and red represent private companies (ArcGis map, made: 12-20-2016).

It is important to know that all the governmental companies in Ukraine own forests and none of the private companies does. The size, age, species and structure of the forestland that the governmental companies own differ a lot between the different companies, but what they all have in common is that their main business is forest management, where they plant, manage and harvest their own forest. Although, many of the governmental companies also have other businesses such as processing of wood, export of wood products, hunting and camping recreation business. These side businesses are different in all the governmental companies, which makes the LEB affect them in different ways depending on their businesses. Common for all governmental companies is that they are strictly directed from the main forest office in Kiev, the Ukrainian State Agency of Forest Resources. They decide how all the regional and local governmental offices should manage and harvest their forests, leaving them with limited own responsibility. The private companies operate in different areas, all within the forestry sector and they can, as well as the governmental companies, be affected by the LEB in one or another way even if they don't own any forest.

All companies, except from one, are export oriented in some way, where wood or wood products are being sold abroad, mainly to European countries. Although, it was of course only the governmental companies, which own forest, that could export round wood before the LEB was inserted. The private companies therefore only export secondary processed wood products. The only company that was not export oriented was "PPV Knowledge networks". This is because they do not have any processing industry and their area of work is to develop IT-business systems within the Ukrainian forest sector. The reason why they were selected anyway is because of their insight and knowledge within the forest sector, where they want to develop and increase the transparency.

The organisations in this study are formal organisations that can be described according to Greenwalds (2008) definition of an organisation, as working groups that strive to achieve

common goals. The groups are created to maintain structure and stability for the people working in it as they usually have mutual goals and issues (Greenwald, 2008). Ukrainian organisations constitute the main body in this research, where the results will be presented based on the organisations perspective. Organisations operate in a business environment where external factors, such as an LEB, have impact on them. To capture a wide range of thoughts and opinions from forest- related organisations in Ukraine, the interviewed organisations vary in size, main business and ownership. The 18 interviewed organisations consist of both private and governmental companies that operate both in the processing- and logging sector. Mostly private companies represent the processing sector, but also some governmental companies have a processing industry. Governmental companies exclusively represent the logging sector, since private companies are not allowed to own forest. What they all have in common is that they operate in the Ukrainian forest sector, which means that there is a high possibility that they, in one or another way, have been affected by the implementation of an LEB.

3.2 Data collection

Data collection is the most crucial step of any research, because even if the data analysis method is being done properly it can never make up for improperly collected data (Bernard, 2002). As mentioned before, the data for this research has been collected through semi-qualitative interviews.

3.2.1 Questionnaire

The first step of the data collection consisted of development of research questions for the interviews. When developing the questions it was important to make sure that they would capture information to fill the knowledge gap that this research's aim is to fill. This was done by reading, collecting information from articles within the subject and by studying theories within the subject. A semi-structured method was used when creating the questions. Some of the questions on the questionnaire were made in a quantitative way with alternatives and some were more open where the respondent could explain and develop deeper thoughts within the subject. This kind of data collection, which collects both qualitative and quantitative data, leaves good opportunity for the researcher to use a mixed- method technique when analysing the data (Sandelowski, 2000). The questionnaire was written beforehand to keep all the interviews similar and except from answers of the questions in the questionnaire, all extra information given by the respondent was noted and has been used as extra qualitative data in this study. This was seen as necessary in order to not miss any information and also because it was hard for the foreign researcher to develop questions that would capture the whole picture.

The questionnaire was sent beforehand to an Associate Professor at the Ukrainian National Forest University, Olena Maksymets, to get some extra input by a professional within the subject and also to make sure the questions were appropriate to ask respondents in this country and culture. When the questions were done and analysed, one test interview was booked in Lviv. The purpose of this was to make sure that all questions were suitable and that they would capture some important information within the research area. Some small adjustments were made and then the final version was done. The questionnaire was written in English by the researcher and then translated into Ukrainian by Olena Maksymets, Ukrainian National Forest University.

The questionnaire consisted of 14 questions, where the first once aimed to capture a description of the company and the interviewed person representing it. After this, a number of quantitative questions with alternatives were asked. These questions captures information about how the LEB has affected the company within different areas such as certification, export share,

employees, facilities, market, products and harvest volume. The rest of the questions were qualitative without any answer alternatives. Their aim was to capture deeper thoughts about the LEB and how they think it has/ or will affect the company and the forest sector in Ukraine. Together the questions capture all six areas within a PESTLE- model, political, economic, social, Technological, legal and environmental. If an interviewed person gave extra information that was not asked in the questionnaire, this was written down in a notebook to give the researcher even more qualitative data. The full questionnaire with all questions can be found as an appendix in the end of this paper.

3.2.2 The interviews

The interviews has been kept semi- qualitative to be able to capture some deeper thoughts and opinions from the different organizations and it's representatives. Qualitative interviews are helpful in this case because it can be hard as a foreign researcher in Ukraine to imagine and collect enough information beforehand to write good enough questions that will capture the whole picture of the study (Malterud, 2009). The quantitative questions are seen as necessary to get some questions where results can be measured and compared between organisations. This combination of quantitative- and qualitative data collection and analysis has become more popular among researchers. This is because it has been proved that if it is used in the right way it can improve the analytic power of a study (Sandelowski, 2000).

The first test- interview that was made in Lviv had the purpose to evaluate the questions and is therefore not included in the result of this research. When conducting the 18 interviews included in this research, the researcher lived in the city of Lviv, in western Ukraine, and had cooperation with the Ukrainian National Forest University and the Associate Professor Olena Maksymets. All interviews were conducted together with a student from the Ukrainian National Forestry University, Sophia Kolisnyk. She was well involved within the subject of the research since she was also writing a thesis based on the result of these interviews. To have a Ukrainian speaking student that had much knowledge about the subject of research as company when conducting the interviews is seen as a big advantage in this study. This way language barrier could be avoided during the interviews and there was no need to bring another translator, who maybe wouldn't have had good knowledge about the research area. The Ukrainian student, Sophia, had good knowledge in English and could translate every question during the on-going interview. The respondents were very understanding and took breaks to let the translation be made. If there were any insecurities from either the respondent or the interviewers the question was explained further to make sure there were no misinterpretations. Some of the respondents of the interviews spoke English and in these cases both the English and Ukrainian language was used. One more advantage language- wise is that the Swedish researcher of this study can understand parts of the Ukrainian language.

To make sure this study will capture all human dimensions, such as body language and face expressions, and not only words, all interviews were made face to face. The interviewers travelled by car to visit all the companies and the interviews were made in the office of every respondent. This way the interviewer could see the office and the respondent in their working environment. Many of the companies also choose to give a guided tour on the company's industry area and office. This helped the researcher to get a deeper understanding of the company and its production and facilities. Some interviews were booked beforehand and some weren't. The interviews were between 20 minutes and 3 hours long and the longer ones were when a guided tour on the company's industry was given. The shorter interviews, which were about 20 minutes, was enough to get the respondents answer on the basic questions on the questionnaire but these didn't capture some extra information on the subject.

Every respondent got a questionnaire written in Ukrainian to be able to read the question and not only hear it from the interviewer. While the respondent verbally answered the question the interviewer took notes. Some respondents choose to develop their thoughts within the subject further than to only answer the questions in the questionnaire. In these cases the researcher took notes in a notebook and seized the opportunity to ask further questions to not miss out on any extra information that was given. Directly after each interview was conducted, the researcher and the Ukrainian student, Sophia, had a short meeting where all answers was checked through to look for any obvious mistakes that could have occurred because of misinterpretations.

3.2.3 Industry visits and other meetings

In addition to the interviews, six companies gave us a guided tour around their industry, showing the production. Five of these were private companies and only one was governmental. In general during this field research it has been clear that private companies are in general more open about their business, while the governmental companies are not willing to share as much information. The industry visits has not been used as any new data in this study, but they were a good complement because the researcher could see the facilities and production. This made the answers of the interviews seem trustworthy.

Besides interviews and industry visits the researcher made one trip to Chernivtsi, which is located close to the Romanian border. Interviews were made with the head of Chernivtsi train station, a woman working with controlling the tracks and with two men working on the toll between Ukraine and Romania. The decision to make this visit was based on the fact that Ukrainian newspapers and articles suggested that round wood was still exported to Romania illegally. Also many interviews and discussions with a professor on the National Forestry University in Lviv suggested the same thing. The results of this visit and the interviews made in conjunction to it will be presented in a separate chapter in the end of the result. This part of the study was not planned beforehand but is seen as important information when analysing the results of the interviews with the organisations.

3.3 Data Analysis

The method used for analysing the data in this research is made by sorting the collected data in different themes based on theories presented in the theoretical framework. To make the collected data easier to work with and to prepare it for analysis it was transferred from handwritten text on the questionnaire into a computer. This was made by re-creating the questionnaire on a webpage called docs.google.com, which is a service where you can create online questionnaires and send by email. The questionnaire was sent to the researcher's email and then 18 different questionnaires were filled in with the answers from all 18 organisations. The advantage of using this program is that it summarizes all quantitative answers in graphs and numbers by itself. After doing this, all data from the 18 interviews was collected in one place online where it was easy to work with. All extra information collected through the interviews that were written down in a notebook was also transferred into the Google document. This way all collected data was now gathered in one place, meaning it was ready to analyse.

When the analysing could start, the data was studied closely while thinking upon the aim of the study. The first two questions in the questionnaire aimed to capture information that describes each organisation. These two questions do not need to be analysed, but are presented in the beginning of the results in order to give the reader background information about the interviewed organisations and its respondents. This can be seen as help for the reader to be able to do its own interpretations of the results in this research. The rest of the questions were sorted into different segments in the PESTLE- model from the theoretical framework, some suiting in

more than one segment. The 6 different segments in the PESTLE- model have been used as the main headings in the result section of this thesis. Since some answers differed quite much between the private- and governmental companies, these questions were analysed by making a comparison between these two segments. It is seen as very interesting to analyse how the LEB affects these two different branches of the forestry- sector in Ukraine and how well this match what the theories suggests.

The final step of data analysis in this study was to compare how well the collected results match what the theories in the theoretical framework suggests. When making this comparison the background literature was also important to keep in mind. The key findings when making this last comparison analysis will be presented in the discussion, where the researcher's reflections will also be considered based on the aim of the study.

3.4 Validity and reliability

When conducting a study like this, based on collected data, validity and reliability are important aspects to consider. To avoid bad reliability or validity of a study it is necessary to first define the case that has to be studied, then determine what and how the data should be collected and finally know what to do with the collected data. The right execution of these three steps creates a study with high validity and reliability. Reliability is more important in quantitative studies than in qualitative, but should be considered in all cases. The sample size is an important factor both in quantitative and qualitative studies, while validity of measurable results is mostly connected to quantitative studies (Sadovnik, 2007). For a study to be considered as reliable it should be possible for another researcher to repeat the procedure of the data collection, with the same results (Yin, 2009).

This study includes both quantitative and qualitative data collected through interviews together with observations made during visits on the industries. When collecting the subjective qualitative data there is always a risk that the interviewed persons thoughts and opinions can have an affect on the answers. This lowers the reliability of the data and to minimise these types of errors it is desirable to collect data from many different sources. In this study the data was collected from 18 different organisations, which is seen as enough to get a data set that can be seen as trustworthy (Sadovnik, 2007).

One of the strengths with qualitative data compared to quantitative is validity. When investigating the validity of qualitative data, the method for collecting the data should be considered. In this research, literature reviews on the subject has been limited due to lack of written articles on the subject. This is the first time Ukraine has inserted an export restriction on timber and therefore no earlier studies exists. Due to this, interviews and industry visits is the base of the collected data. Compared to other studies that are exclusively based on interviews, this study has a high validity because of the industry visits. The study includes multiple sources of evidence, which is one of the most important aspects in order to receive a high validity study. In an interview you only collect data given by the interviewed person, but when adding industry visits this increases the validity (Yin, 2009).

The validity of a study can also be affected by external factors, meaning there can be other factors than the LEB in the study that has affected the results. If there are certain risks, which could affect the result it is important to take them in considerations. In this study, no specific big external effects have been noted. However, it is important to remember that the first step of the LEB, which was inserted in November 2015, did not include export stop of pine logs. Therefore some companies could still export pine legally during the time of this study. Although, since the law says that pine will also have an export ban starting from January 2017 the companies had to

have this in mind. Still this means that some of the companies, which own mostly pine forests, may not have been affected in a big scale yet by the time when this study was made. This is an important factor to take in consideration when analysing the results of this study (Yin, 2009).

According to Hoskinson et al., 2000, owners and managers in eastern European countries tend to limit the amount of information they give out more than managers in Western Europe. This problem was seen during this study and sometimes made it hard to collect all information needed. Although, the researcher was very determined to collect as much answers as possible. Therefore, if the first person interviewed did not give answers to all questions, the researcher searched for another person on the company that could give the missing answers. In the end all companies answered all quantitative questions, but some qualitative answers were not. To get answers from all 18 companies on all quantitative questions is seen as a big success, which makes it easier to analyse the data (Hoskisson, et al., 2000).

One thing that has increased the validity of the study is that theory has been used as help when analysing the qualitative results. Meaning that not only the researchers interpretations have laid out the basis of the results but also a theoretical framework has helped to guide the author. Also the careful description of the research method, data collection and method, together with the background chapter can help the reader to set the results in perspective to this and do its own judgements (Creswell, 2009).

Even if all quantitative questions were answered, there is always a risk of low reliability. After travelling around in Ukraine to conduct these interviews it has become clearer that some organisations want to keep some information secret. Therefore some questions were not answered. In one interview where two different representatives from the organisation was interviewed they had different answers to the same question. It was a governmental company where the head of the company answered that they have equipment for processing of wood, while the chief engineer answered that they do not have any processing equipment and are therefore dependent on selling logs. In this case it is hard for the interviewer to know who is trustworthy and what answer that should be included in the interview. In this particular case, the chief engineer seemed trustworthy and his answer was chosen. The explanation to this is because the head of the company was clearly bothered by our visit and did not want to answer many questions. The chief engineer on the other hand gladly answered the questions and showed us their property where there was clearly no equipment for processing visible. This is just an estimation based on the researcher's intuition and can therefore be questioned in terms of this study's reliability.

A last, but not least important factor that could affect the reliability of this thesis is corruption. When conducting the interviews many respondents told stories about that there is a lack of transparency within the forestry sector in Ukraine. The most surprising answer that many of the private companies gave was that the governmental companies still export logs illegally to Romania. More of these comments will be presented and analysed in the result- and discussion section, but it is important to mention here that this is a factor that could possibly have a large impact on the results of this thesis. In cases like this when different companies blame each other it is a struggle for the researcher to know what information can be trusted or not. However, some guidelines can be found, for example by looking at corruption perceptions index of countries in the world. On this list Ukraine ranks on position 131 out of the 176 countries on the list, which means that the level of corruption has been estimated to be high (Transparency International, 2016).

4 Results

The main section of the result in this thesis will present the answers of the research questions by sorting it in accordance to the PESTLE- model. Before the result based on the PESTLE-model is presented, there will be a section, 4.1, with results describing the companies that have been interviewed. This description is based on the two first questions in the questionnaire, which aimed to capture information about the company. There will also be a section 4.2, which presents the biggest differences in result between private and governmental companies. The structure of the result section will be laid out in the way that the quantitative measurable questions are presented in figures or graphs. Then the results of the qualitative questions are explained to add deeper information and thoughts from the companies.

4.1 Description of interviewed organisations

The 18 interviews were conducted in five regions in the western part of Ukraine. Below is a diagram showing how many interviews that were conducted in each region (Figure 12). Lviv Region is where the researcher was located during the time of the study, therefore most interviews has been made there.

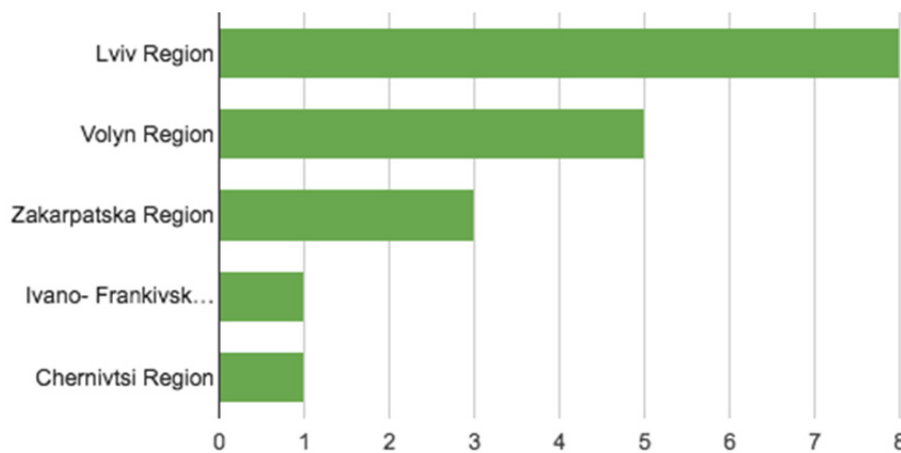


Figure 12. Number of interviews in the five different regions.

Six interviews were made with private companies, which correspond to one third out of the interviews. Three of these are small family owned companies, Limited Liability Companies (LLC), where two of them processes boards and planks mostly for export and one produces boxes and packaging from low quality wood, also for export. Two other private companies are limited companies (LTD). They both produce furniture, one for IKEA and one for different buyers both on the domestic and international market. The last private company is an economic development agency for the Ukrainian forestry sector, where they develop IT-solutions for forest related companies. Since Ukraine has not yet developed any forestland privatization, no private companies are allowed to own and harvest forest. They can buy timber on auction from the governmental companies and therefore they only represent the processing sector.

The 12 governmental companies included in this study represent different levels of the State Forest Resources Agency of Ukraine. Three of them are from the Regional Level (second level), meaning they are responsible for all forestland in that whole region. Nine of them are from the Local Level (third level), meaning they represent and own the forest around the specific village where they are located. Common for all governmental forestry companies in

Ukraine is that they are controlled from the main office in Kiev and therefore have limited own responsibility. The governmental companies own forest, in difference to the private companies, and therefore they exclusively represent the logging sector in this study. Although, the governmental companies can also process wood, which means that the processing sector is not exclusively represented by private companies.

The interviewed persons had different positions within the organisations and the most common respondent was the director of the company. The aim was to interview the director at each company and this goal was achieved well, since most companies were not willing to conduct an interview if the director was not on place. In some cases the director did not have time himself to conduct the interview, but most of the times he gave permission for another employee to answer. When another employee was interviewed, the director often wanted to read through and approve the answers before we left. At all interviewed companies in this study, the director was a man. Only three women were interviewed in total, two of them were chief economists and one was international chief (Figure 13).

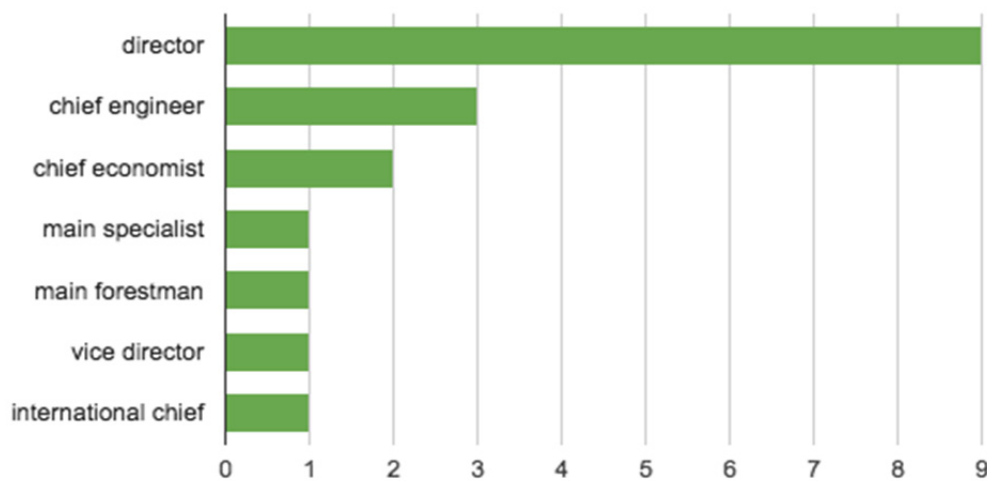


Figure 13. Quantity of interviews made with each group of working position.

The size of the interviewed companies has a big variation and the number of employees' ranges from 8-3000. Three companies have over 2500 employees and these are the governmental companies on Regional Level, which represent the whole region. The rest of the governmental companies are from the Local Level, meaning that they only operate in- and around villages/cities and therefore they have less employees. The private company with most employees is the furniture factory that produces furniture for IKEA with 850 employees. The rest of the private companies are relatively small, where three of them are family owned and have only 8 employees (Figure 14).

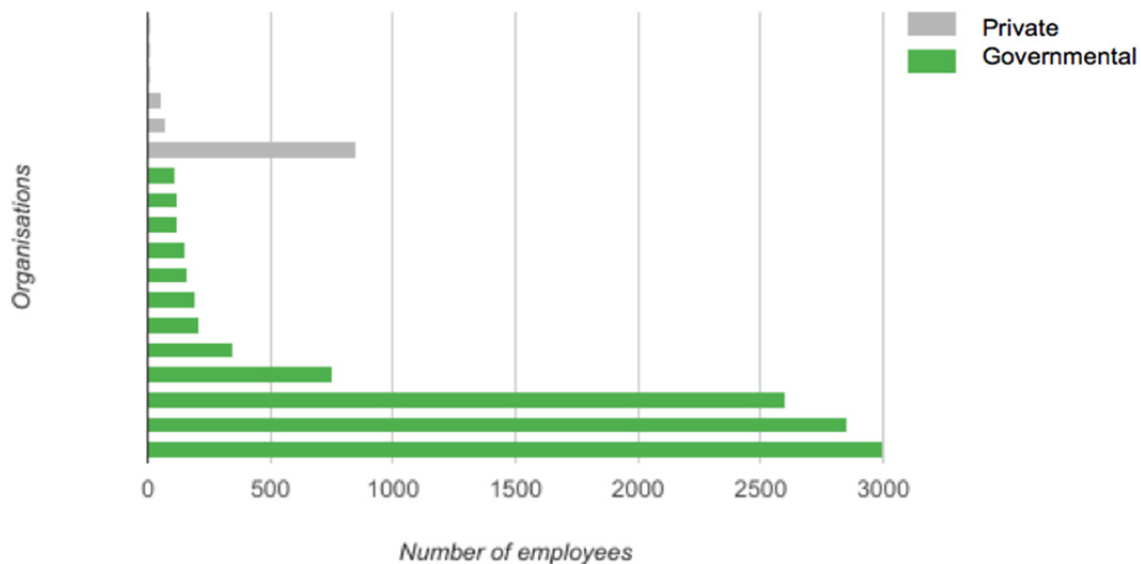


Figure 14. Quantity of employees at the 18 interviewed companies. Note that the three upper companies are almost not visible because they have only 8 employees.

4.2 Results based on PESTLE- model

Some results refer to more than one area within the PESTLE- model and the categories sometimes overlap each other, which usually is the case in real business environments. The legal- and political factors are very close linked together in this study and therefore they will be presented in the beginning of the results. Every category of the PESTLE- model will be divided into separate sections, where each section refers to the answers of one research question. By dividing the results into the PESTLE categories it is possible to evaluate and make conclusions about the effects of the LEB based on different areas within the business environment in Ukraine's forestry sector.

4.2.1 Legal

The companies were asked to **estimate how much knowledge they have about the LEB and if they understand the purpose of implementing this the law in Ukraine** (Figure 15).

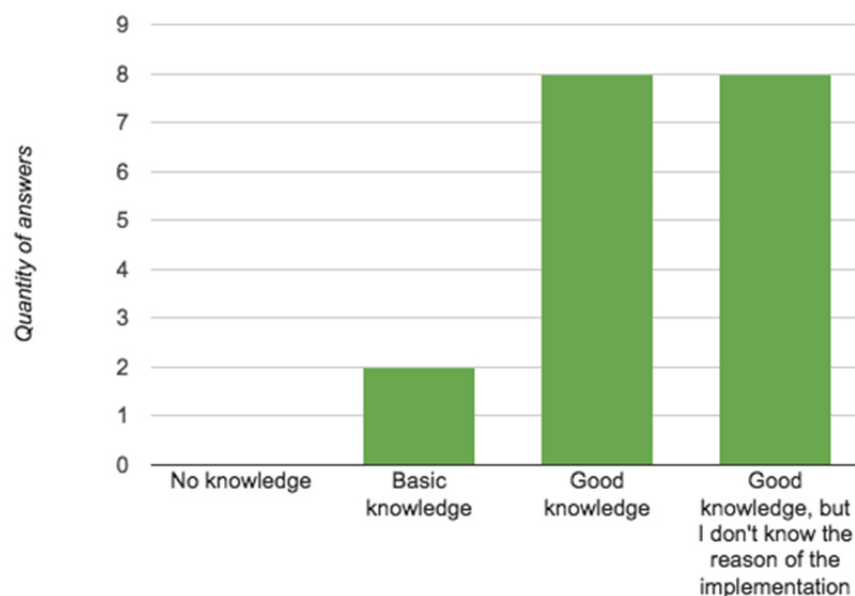


Figure 15. What knowledge the companies estimate to have about the LEB.

In general, the companies estimate that they have good knowledge about the new law but many of them do not understand the reason why the Ukrainian parliament chooses to implement it in Ukraine. They were later asked **what they think about the LEB and how they think it will affect the forest sector in Ukraine**. The answers to this open qualitative question show a clear difference in opinion between private and governmental companies. Five out of six private companies were very positive to the LEB and gave some of the following answers:

“It's good that the processing step will be added in the country because it creates more jobs, which brings tax to the state. This will help investors to invest in the forest industry”

“Think this ban is good, but only if they combine it with a second law that they promised. To take the tax away for buying equipment from abroad. Right now it's too expensive to buy equipment and take to Ukraine and on the local market we don't have modern equipment”

“The ban helps to increase the amount of secondary prepared wood in Ukraine. And this further helps to create more working places, which gives more tax to the state”

When looking at the answers from the governmental companies it shows a very different result. All 12 governmental companies were more or less negative towards the LEB and the answers were very similar from all of them. The two answers below represent the most common answers from the governmental companies.

“It's a loss of opportunity to export. This will affect Ukrainian forest companies so they have smaller chances to develop. It's almost impossible to develop processing of wood on your own”

“With no export allowed there is too much timber on Ukrainian market and we can't sell all of our timber but still we have to cut it down. This means that we cut timber that is just lying in heaps getting old”

After knowing the attitude towards the law we will look at how the LEB has had a direct effect on the companies. Basically the law only has a direct effect on companies that owns forest and were exporting unprocessed wood before. All governmental companies own forest, which mean that only they have a chance to export unprocessed wood. **Did you export unprocessed roundwood before the LEB was implemented?** (Figure 16).

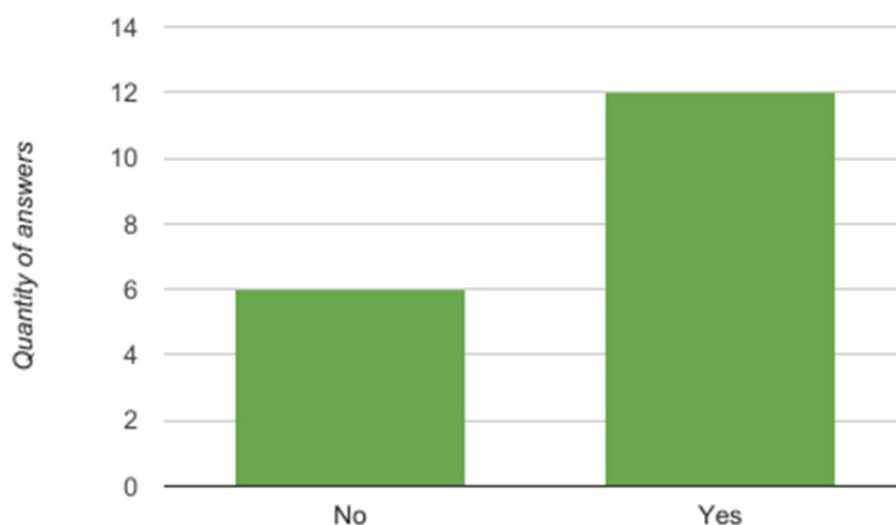


Figure 16. Number of companies that exported unprocessed wood before the LEB.

As expected, all governmental companies answered that they exported unprocessed wood before the LEB and none of the private ones did. This means that all twelve governmental companies have been directly affected by the ban, since they can no longer export unprocessed wood.

When knowing that all governmental companies exported unprocessed wood before the ban it is also interesting to look at how many companies that exported processed wood products before the ban (Figure 17). This will show which companies that have a business that is not affected by the ban and can therefore continue and be developed. The result was captured in question number 4 b and can be found in the table below. **Did you export processed wood products before the LEB was implemented?**

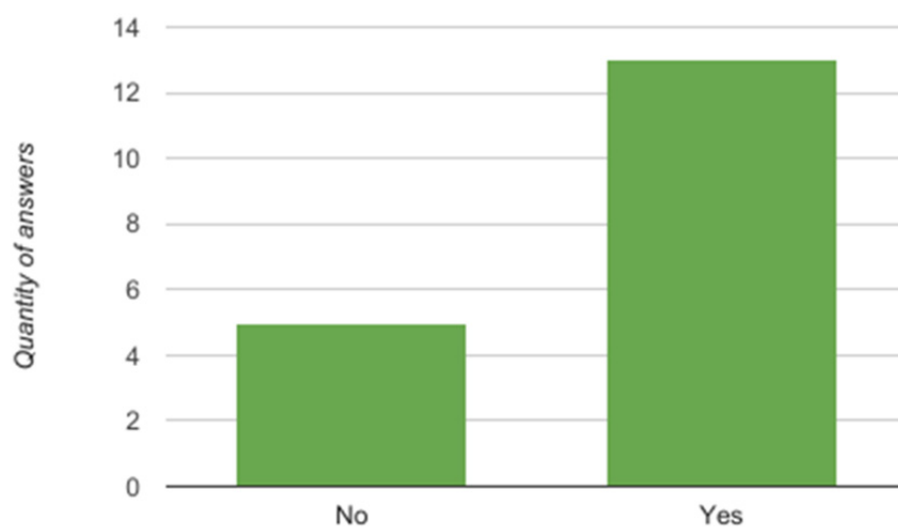


Figure 17. Companies that exported processed wood products before the LEB.

Three of the companies that did not export any processed wood products before the LEB were governmental and the other two companies that answered no were private. The reasons why these two private companies didn't export either unprocessed or processed wood before the ban was because one of them started their business in 2015 when the LEB was inserted and the other company is an educational company within forestry that doesn't produce anything. So the overall result shows that all governmental companies exported round wood before the insertion of the LEB in November 2015 and only three of them exported processed wood products. This means that nine governmental companies were dependent on unprocessed roundwood export before the implementation of the LEB.

4.2.2 Political

During the interviews, industry visits and the visit to the Romanian border, many political problems connected to corruption were distinguished. Also, during the interviews the following statements were made, indicating political instability and illegal activities:

"State companies haven't lost any money because of the ban since they still sell their timber for the same price to Ukrainian companies. The managers of the state companies lost because with the ban they can't conduct corruption anymore and harvest illegally as much"
(Interview with private company)

"It starts to be common to write fake documents that you have cut the forest down even if you haven't. It's unnecessary for us to pay for cutting down forest that we can't sell"
(Interview with governmental company)

“I think the ban as it is now is a bad solution and it will affect governmental companies more than private companies. Some people in the government, which were decision makers when the law was inserted, have their own private forestry companies. This law is in their favour and we think they inserted it to make more money themselves. I think it would have been better to insert the ban in small steps for example to decrease the export with 50% firstly. It's too radical to ban all timber at once”

(Interview with governmental company)

“The LEB doesn't really work so well. Many people are trying to hide unprocessed wood under boards, planks and other processed woods. They have to be more careful on the border to check out the products that are being exported”

(Interview with private company)

This political instability and corruption in the country creates an unsure business atmosphere and many companies expressed an uncertainty about the future. The companies were asked to describe the future for their company. **What strengths and weaknesses they have and what opportunities and requirements they see for success in the future.** The answers from all six private companies were very similar; where all of them said that their strength is that they work in the processing industry and are therefore not directly affected by the LEB. Most of the governmental companies answered that their future in the forestry industry looks dark and they hope that the ban will be taken away earlier than after ten years. Five governmental companies answered that they have not yet laid out a strategy for the future in order to adjust to the LEB because of the political instability. Four of these companies could still export pine logs legally during the time of this study. The other seven governmental companies explained that they see a bright future for their company where they will invest in more processing if the politicians choose to keep the LEB.

Another political issue that was mentioned by seven out of twelve governmental companies is that the main forest office in Kiev controls them when it comes to harvest volume. The interviewed governmental companies explained that they are not allowed to decide their own harvest volume based on demand. Instead the government in Kiev decides exactly how much forest every regional- and local office has to harvest each year. Now when there is an export ban, this has left many governmental offices in a situation where they have to harvest more than they can process themselves and sell on the Ukrainian market. Since there is not enough demand on the local market yet, this means that a lot of wood simply goes to waste. Some governmental companies told in the interviews that sometimes they write in documents that they have harvested a forest, but in reality it is left standing because they will not be able to sell the timber anyway. This way they can avoid the costs of harvesting, transporting and storing timber that would go to waste if it was harvested.

A quantitative question in the interviews that captured this problem with harvest volume is the question; **if you harvest forest in your company, have you decreased your total harvest volume since the log export ban started?** (Figure 18).

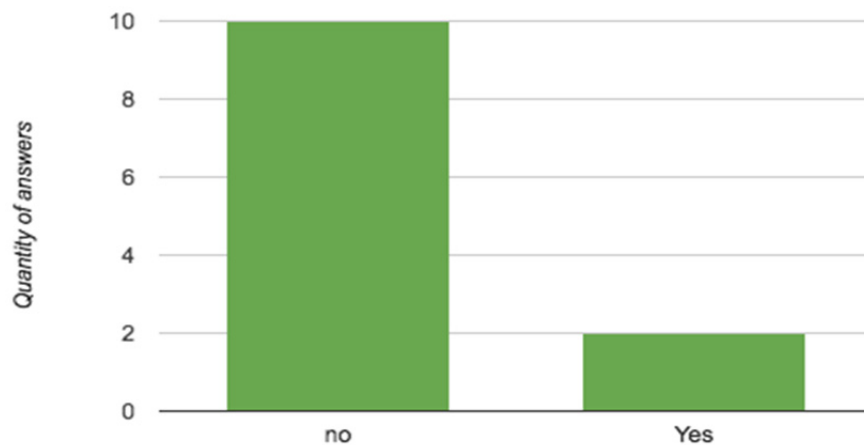


Figure 18. How many governmental companies that have decreased their total harvest volume since the LEB was implemented 2015.

The two companies that has decreased their harvest volume are located in the same region, were one of them is the company that mentioned that they do not harvest as much forest as the state demands from them. One of these companies has no secondary production at all and the other only has chainsaws for manual production of fuel wood.

4.2.3 Economic

One of the questions in the interviews gave a clear difference in answers between private and governmental companies (Figure 19). **How has the LEB so far affected your company?**

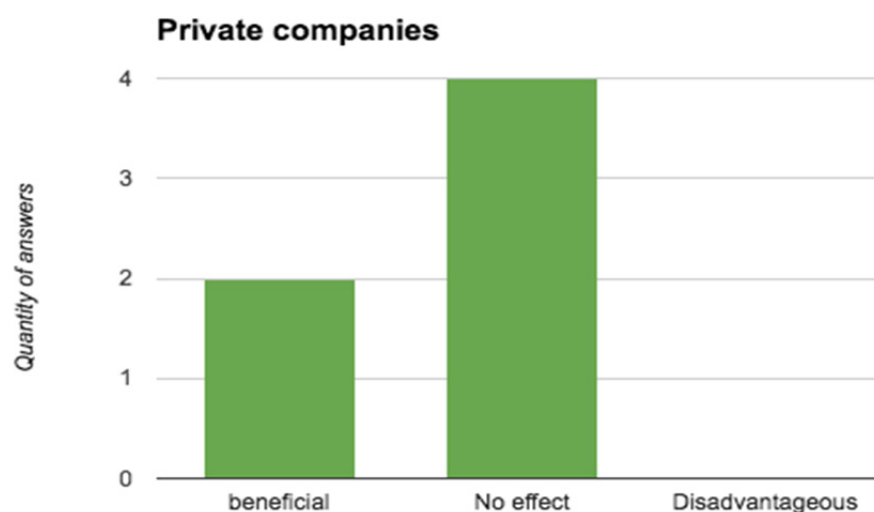


Figure 19. Show if the LEB has had any effect on the interviewed private companies.

The two private companies that answered that the LEB has been beneficial for them include one big furniture factory and one small company that started operating when the LEB was implemented. Both of them explains that there is more wood available for them on the local market now and therefore they can produce more. Even if the timber is more expensive now than before it is profitable for them to buy timber from the governmental companies, process it and then sell it. The four private companies that answered that the LEB had has no effect on them explains that the price got higher but at the same time they make more money because they can produce more wood products and sell.

When looking at the governmental companies answers on the same question the difference is big (Figure 20).

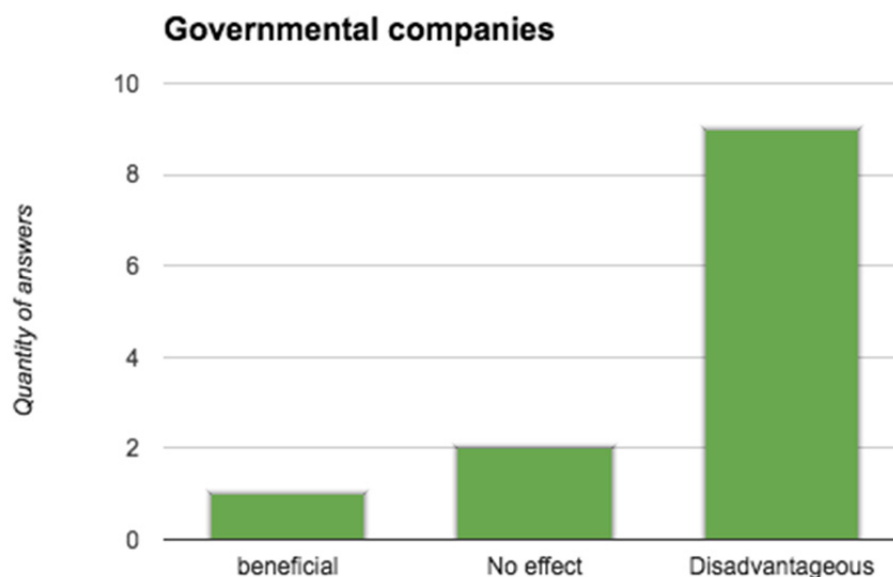


Figure 20. Show if the LEB has had any effect on the interviewed governmental companies

The only governmental company that believes the LEB has been beneficial for them is located in Zakarpatska region and they were mostly oriented on the local market also before the LEB, when their export share was only 10 %. They explain that they now have an advantage against the other governmental companies because they sold most of their timber on the local market already before the LEB and therefore they have many local regular customers.

The two companies that answered that the LEB has had no effect on them are both located in Volyn region where they have mostly pine forest. Pine can be exported until January 2017, which means that they could still export pine at the time when this research was conducted. This was also their explanation to why the LEB has not yet had any effect on them.

Nine governmental companies answered that the LEB has had a negative effect on them and the explanations were similar from all companies. Below is a list that summarizes the main findings in their answers:

- Loss of economic profit from exports operations of unprocessed wood.
- Do not have enough processing equipment and cannot afford to buy new.
- There is now an excess of wood on the Ukrainian market where everything that is cut cannot be sold.
- Some species and qualities of wood are not demanded on the Ukrainian market at all and are therefore impossible to sell now after the implementation of LEB. This applies in particular to small logs.
- In Ukraine many households still use fuel wood for heating, which means that fuel wood is more demanded on the local market than timber. Now after the LEB, when not all timber of good quality can be sold on the local market, governmental companies are sometimes forced to sell high quality timber as fuel wood in order to make some money even if it pays much less.

As the answers above show, the Ukrainian forest- related business environment has changed as a result of the LEB. Some interviewed organisations had already worked out a plan for how

they will adjust to this new business environment but some of them had not. The following question captures this picture (Figure 21): **Are you planning on changing your business strategy as a step to adjust to the LEB?**

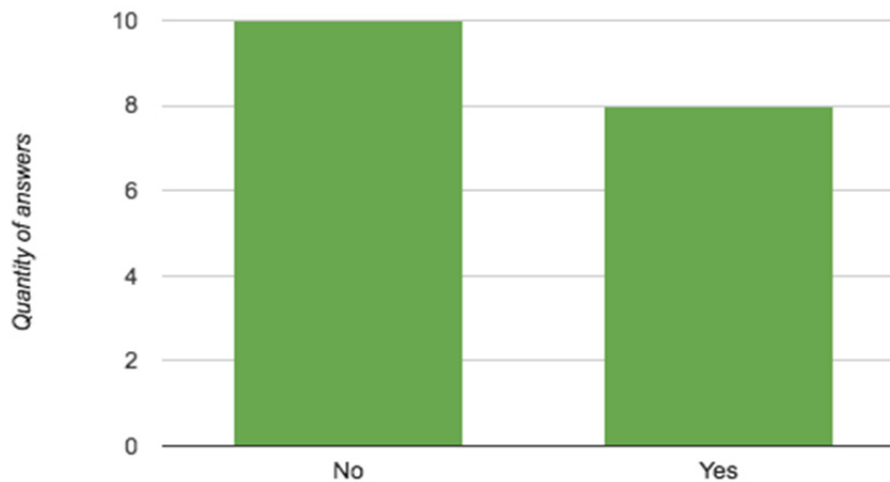


Figure 21. How many companies that plans to change their business strategy as a result of the LEB.

Some companies explained that they think the LEB will be taken away earlier than planned (10 years) and therefore they do not want to adjust to it.

One factor that is important to look at when it comes to timber prices is how the competition has changed on the national market after implementation of the LEB. When all governmental companies suddenly are forced to sell all their timber domestically, the amount of available timber on the Ukrainian market increases. Only two out of 18 companies answered that they have **noticed challenges when it comes to competition from other national forest companies since the LEB was implemented?** (Figure 22).

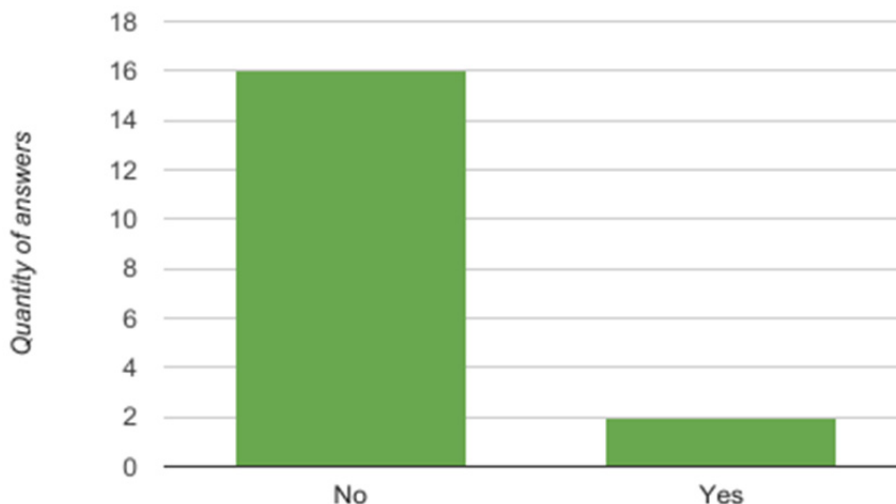


Figure 22. How many interviewed companies that have noticed challenges in competition from other national forest companies since the LEB was implemented.

Both companies that answered yes on this question explained that the competition from other private companies decreased, because now with the ban there is more wood available on the national market. However they had noticed that the competition between governmental companies increased because there are not enough national companies to sell timber to. They also mentioned that the expectation was that this competition between governmental companies

would lower the price on the national market, but the reality turned out different and the prices increased. The governmental companies explain that the reason why they have not noticed any changes in competition on the national market is because all regional offices have their regular customers and they are still the same. The only thing that changed is the fact that they sell less timber in total, because they lost their right to export and they cannot sell everything on the local market because of low demand.

Governmental companies mentioned that before the LEB they could sell a big share of their timber for a higher price on the international market and the rest they sold to a lower price on the Ukrainian market. This means that before the LEB the price was different for the same product on the international- and the national market. The Regional Department of Forestry and Hunting in Zhovkiv showed price lists on average prices for their sold timber during 2015. One example they showed was the price on first quality oak, where the price for selling on the international market was 4200 UAH /m³ and on local market it was 2460 UAH /m³. They mentioned that their average loss of all qualities of oak in 2015 on Ukrainian market compared to export was 56 EUR / m³. Many governmental companies also mentioned that this is the reason why they now after the implementation of the LEB have to increase the price on the Ukrainian market. They try to compensate a part of their loss by increasing the timber price on the Ukrainian market.

One very important result that this thesis aimed to capture is how the timber price on the local market would change after the implementation of the LEB. As shown in the “Theoretical framework”- section in Figure 9, the theory says that when the supply of a product is increasing on the national market, the price would normally go down. However, the reality seems to look different in this case.

Ten out of 18 companies mentioned that the timber price on the local market has gotten higher since the LEB was implemented. The hope was that when more timber is available on the national market, the prices would go down because of lower competition. Instead the governmental companies now set a higher starting price on the auctions than before. On some species the price got twice as high and on some just slightly higher. Anyway this has left private Ukrainian processing companies in a situation where the price on timber is higher now than before the LEB. During the interviews, five out of six private companies mentioned the problem with higher prices on the local market and that it is now hard for them to afford timber. Five out of 12 governmental companies also mentioned that the domestic prices have increased and the explanation is similar from all of them. They are simply trying to compensate for the loss of income from export operations. Many of the private companies had other explanations and theories where they gave some of the following answers:

“Governmental companies have started to set a higher price on auctions in hopes that the timber will not be sold. This way they can export it illegally instead of selling it for a lower price on the Ukrainian market”

“It is not harder to find and buy timber on auctions on the local market now than before the LEB, but it is more expensive because all state companies increased the starting price”

“The governmental companies made higher starting prices on auctions because they do not want private companies to be able to make big profits through processing and selling the wood products abroad”

The private companies express big disappointment that the prices on the local market did not go down as expected.

4.2.4 Social

When the Ukrainian government developed the idea of implementing an LEB in the country, one important goal was to create more working places in Ukraine. The expectations were that the LEB could help to develop the local forest based industry and create more value added in terms of taxes and further on more job opportunities. The interviews captured answers about working places by asking the following question; **have you made any changes since the LEB was implemented when it comes to number of employees?** (Figure 23).

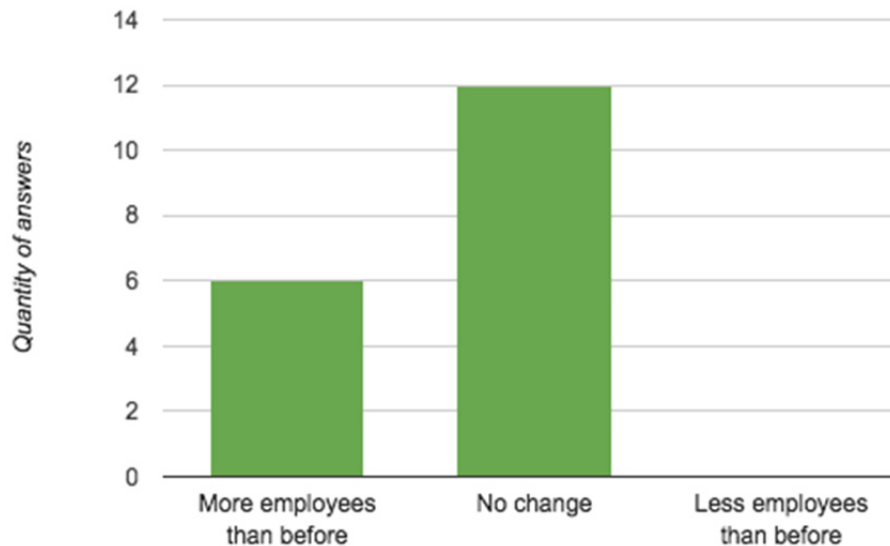


Figure 23. Change in number of employees since introduction of LEB.

Six companies have hired more employees since 2015, when the LEB was implemented and no company has fewer employees now than before. Four governmental companies have hired more people in the processing department because they have increased their production of processed wood products. One private company started as a result of the LEB and employed eight persons in 2015. Another private company could buy more wood because the availability on the local market increase and they could in turn increase their production and hire more employees.

4.2.5 Technological

One important technological aspect when looking at how the LEB affects the Ukrainian forest-related companies is what facilities they have and if they bought or plan to buy more equipment. As mentioned in the political chapter, 4.2.1, the government still has a high import tax (between 10-30 %) on importing of processing equipment and therefore many companies do not have enough equipment. In the interviews all companies were asked what facilities they have at the moment and if they have bought any new equipment after the LEB was implemented. Five out of six private companies have processing equipment, the last one is only a research institution, which has no own processing industry.

The two biggest interviewed private companies are furniture factories and they have drying equipment, Sawing equipment and all necessary equipment for making ready furniture. One of these companies is a supplier of furniture for IKEA and the other one is focused on selling furniture on the Ukrainian market. Both of them mentioned that they have bought new equipment to increase their productivity since the LEB was implemented, because there is now more available wood on the local market. One small private company with only eight employees started operating in the beginning of 2016 in hope that it would be profitable to

start a national processing industry when the LEB was inserted. They bought drying equipment and saw lines for making fuelwood, boards and planks. Their business plan is to make the processing step as cheap and easy as possible and then export, which is why they decided to focus on less complicated products, such as boards and planks. One other private company focused on making boxes for fruit and vegetables. They make everything by handsaws from low quality wood. They had not increased their facility range after the implementation of the LEB because the machines are too expensive to import. The last interviewed private company with a processing industry explained that before the LEB they processed wood to boards and plank and built houses. Now with the LEB they have sold their equipment for house production, since the timber prices got so high.

The governmental companies did not need to have processing equipment before the LEB, since they were allowed to export their logs. When asking the governmental companies about their facilities it was clear that many of them had been put in a difficult situation because of the LEB. Almost 50 % of all interviewed governmental companies answered that they did not have any equipment for secondary processing at all before the LEB. The other 50 % of the governmental companies that answered that they had some equipment for processing of wood mostly had some simple secondary production with low capacity. Among the mentioned equipment are only chainsaws, saw lines, drying equipment and pellets machines, which means that their secondary processing was limited to only pellets or boards and planks.

Now after the implementation of the LEB there is still a high import tax, between 10-30 %, on importing equipment for wood processing. This makes it hard for the national processing industry to develop their sector, as it is often too expensive to import equipment of good quality and in Ukraine the supply of processing equipment is low and often not of good enough and competitive quality. A question asked in the interviews that relates to this is **if the companies had made any changes in their industry because of the LEB when it comes to facilities.** (Figure 24).

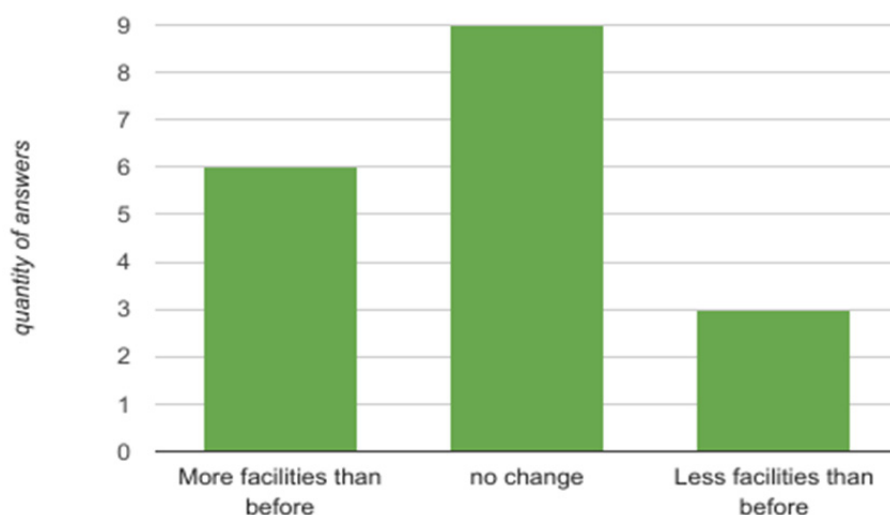


Figure 24. Companies that have decreased, increased or has the same amount of facilities for wood processing now as before the LEB.

Out of the six companies that now have more facilities, two were private companies and four were governmental. Three out of the four governmental companies that now has more facilities are the ones who had no secondary production at all before the LEB. One governmental company said that they still do not have any secondary production at all because they have no money to buy it. The two private companies that now have more

facilities explained that they had money to invest in new equipment and saw an opportunity to process more wood now when the governmental companies cannot export round wood anymore. Out of the three companies that now have fewer facilities, two were governmental and they explained that they sold some of their trucks for transportation of wood, since they don't need them now when they can't export round wood. The private company with the same answer described that after the insertion of the ban the prices on timber on the local market got higher and it is now more expensive for them to buy wood, therefore they had to sell some of their equipment for processing. The new facilities that were mentioned were chainsaws for fuel wood production, pellets machine and saw lines for production of boards and planks. These machines were the cheapest and simplest ones to buy for secondary production of wood. None of the companies had imported their new equipment as they explained that it is simply too expensive. Instead they bought old used equipment on the Ukrainian market, in order to make the most basic steps of secondary production.

Another question concerning the industry and production is **if the companies had changed their product mix in some way in order to suit the new market.** (Figure 25).

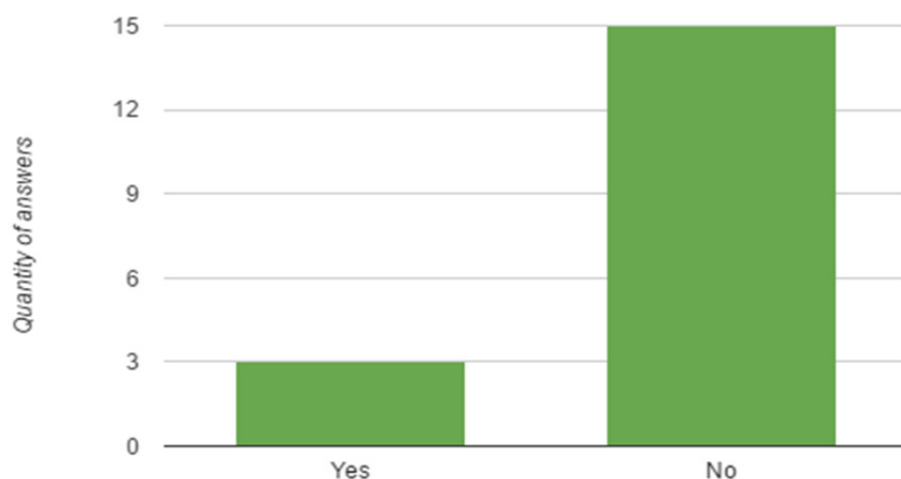


Figure 25. How many companies that changed their product mix as a result of the LEB.

One of the companies that had changed their product mix was private and the reason to why they answered yes was because they started the company as a result of the LEB in 2015. The other two companies that answered yes were governmental and they both explained that they bought simple processing equipment for making boards and planks now that they could not export round wood anymore.

4.2.6 Environmental

One of the environmental goals with the implementation of the LEB was to battle over harvest in Ukraine and this way restore the forest cover. One question asked in the interviews that aimed to capture this was **if the company has decreased their total harvest volume since the LEB was implemented.** The result of this question has already been presented under the 4.2.2 political section, because it turned out that the government control the harvest volumes. Only two out of twelve governmental companies has decreased their harvest volume since the LEB was implemented and these two has decreased their harvest volume by only 15 % each.

It was clear during the interviews that most companies, especially the governmental, were negative towards the LEB and they do not think that this new law will solve Ukraine's issues with over harvest and illegal harvesting (Figure 26). This was captured in the question; **do you think the LEB will be an effective tool to decrease over harvest and illegal harvesting in Ukraine?**

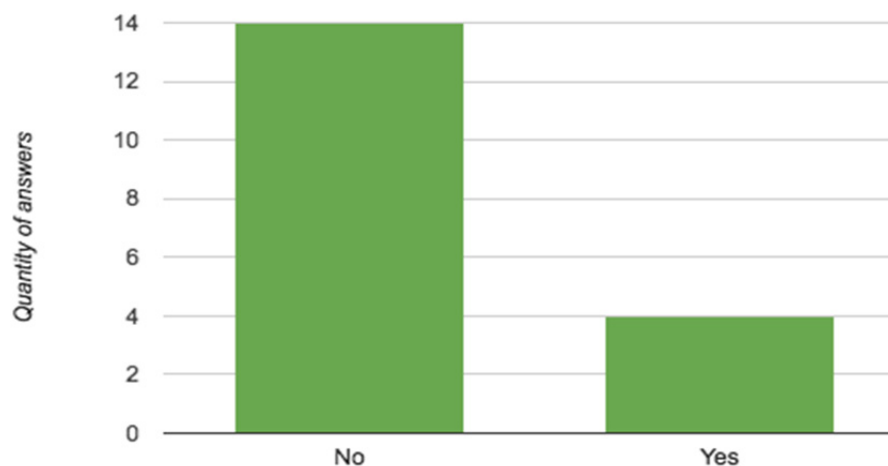


Figure 26. If the companies think the LEB will be successful.

Out of the four companies that answered yes, two were private and two were governmental. The two private companies had similar explanations where they think that the LEB will help to decrease overharvest made by the governmental companies, because with the LEB they cannot export their timber. When they can only sell their logs on the domestic market, the demand will decrease and they will not need to cut more than allowed. The two governmental companies who think that the LEB will be an effective tool to decrease overharvest and illegal harvesting have a different opinion. They mean that it was only the private companies that had the opportunity to conduct illegal harvesting and this way cause overharvest in the country. The explanation was that governmental companies are allowed to harvest forest but private ones are not and therefore the private companies made the illegal harvesting and the LEB can potentially help to solve this issue. In summary this result shows that the private companies are blaming the governmental ones for illegal activities and vice versa.

Another important environmental factor captured in this study regards to environmental certification of logs (Figure 27). The companies were asked **if their logs have any environmental certification, what kind and how many percent that is certified.**

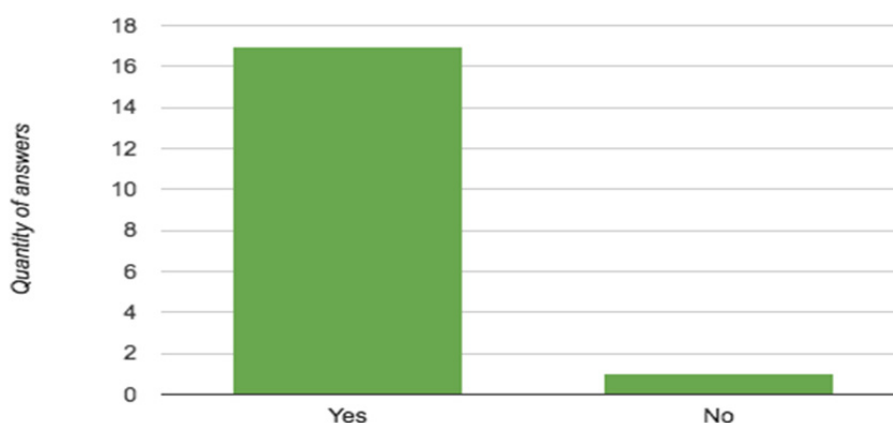


Figure 27. How many companies that has any kind of environmental certification on their logs.

Out of the 17 companies that answered yes on the above question, 13 of them have certification on 100 % on their logs. The other four has certification on 90 %, 80 %, 70 % and 20 % of the logs. Only one company answered that they do not have any environmental certification at all. The explanation was that they produce containers for packaging out of low quality wood and for this kind of products buyers usually do not require certification.

FSC was the most represented kind of certification with twelve companies using FSC. One company used a certification method called SGS and one company answered that they have 100 % certificated logs, but they did not know the name of the certification method. The last two companies are the one who did not have any certification and one private research company that does not produce anything.

4.3 Result from visit to Chernivtsi

In the end of this study, a field trip was made to the city Chernivtsi. This field trip was not planned beforehand but after suggestions and news articles it was seen as good opportunity to gather extra information, especially since the results of the interviews led to further questions. Ukrainian news articles, professors and C.E.Os of forestry companies all suggested that round wood is still exported illegally to Romania and this field trip aimed to investigate if this could be the case.

First the researcher made a stop at Chernivtsi train station. At the moment there were 4 trains filled with, what looked like round wood of a length of approximately 5 meters. An attempt to make an interview with the manager of the train station was made. First the researchers were welcome into his office, but when questions were asked about where the trains filled with wood were going the manager got upset and sent the researchers out immediately. A new attempt to find out the destination for the trains was made. The researchers walked to the other side of the train station where they found a woman working with controlling the tracks. She was asked if she knew the destination of the trains filled with wood. She showed documents where it was written that the destination of the trains was Romania.

To follow this up and to not make assumptions based on only one woman's word, the researchers decided to follow the railway to the Romanian border. When arriving at the border control there were two trains filled with wood waiting to pass the border from Ukraine to Romania. Here the researchers met two men working in the toll control, who agreed to a short interview. They were asked what wood the trains were filled with and if they could show documents of this. They showed the documents and it was written fuel wood < 1 meter long. This raised confusion among the researchers, since the wood in the train was clearly longer than 1 meter. The researchers stated the fact that this did not look like fuel wood, it is not pine (which could be exported until January 2017) and that it is 5 meters long. One man in the toll answered as following:

"I have no idea what fuel wood looks like, but it is written in my documents that this is fuel wood and fuel wood is allowed to export"

The last question asked was if they knew how many trains with this type of wood that passes the border every day and the answer was approximately 15. Before leaving the border between Ukraine and Romania, the researchers decided to stay and watch when the trains passed the border. While waiting, a policeman came and told us that it is forbidden for people to visit this place and asked us to leave immediately. The researchers walked back to the car but sat there and waited until they saw one train filled with wood passed the border (Figure 28).



Figure 28. Train with round wood of softwood on the border between Ukraine and Romania. Note that the researcher saw this train cross the border to Romania. Photo: Magdalena Olsson

In the end of this chapter I want to state that these are only observations made by the researchers of this particular study. Although, there are other recently published articles in Ukraine suggesting the same thing about illegal export to Romania (Youtube, 2017-08-14).

5 Discussion

5.1 Key findings

- The private companies were positive towards the idea of the implementation of an LEB in Ukraine, where they saw an opportunity to buy more wood for their processing industry. The governmental companies on the other hand were more or less negative towards the new law, where they saw a big loss in opportunity from export operations.
- The private companies thought that the LEB so far has been either beneficial for their business or has had no significant effect. In contrast to this, most governmental companies said that the LEB has been disadvantageous for their business. They lost money from export operations, do not have enough processing equipment, cannot sell all qualities on the local market and are forced to sell high quality timber as fuel wood.
- All governmental companies exported round wood before the implementation of the LEB and none of the private companies did. Five companies did not export processed wood products before the LEB and were therefore dependent on export of round wood.
- The timber price on the local market did not get lower after the implementation of the LEB, but instead it increased. According to theories trade theories and the equilibrium model presented in the theory chapter, prices should normally go down after the implementation of a log export ban.
- One third of the companies had hired more employees since the implementation of the LEB. Further on, one third of the companies had also bought more processing equipment to their industry. Three companies had increased their product range of processed goods.
- 10 out of 18 companies did not plan to change their business strategy as a step to adjust to the LEB because of political uncertainties. According to Porter Generic Strategy, this is necessary in order to succeed in a new business environment.
- Overall there was a low believe that the LEB would change issues connected to illegal harvesting and over harvest, where only four companies though the LEB would help to decrease this issue.
- Only two out of all companies has decreased the amount of harvested forest volume since the LEB was implemented. These two companies explained that they were not allowed to decrease their harvesting volume, but since they could not sell it they decided to not harvest. One of the main goals with the LEB was to decrease the harvesting volume.
- Almost all companies explained problems connected to corruption even if it was not included in any of the research questions. There were many accusations made where the private companies blamed the governmental companies for illegal activities and vice versa. Also corruption on high governmental level was mentioned as one big issue.
- Some findings in this study suggest that there might be a hidden export operation of round wood going on in Ukraine, which reduces the positive effects of the LEB.

5.2 Discussion from a PESTLE perspective

5.2.1 Legal

The decision made by the Ukrainian parliament to implement an LEB got very mixed reactions from the harvest- respective the processing sector. The processing sector had high hopes of developing the national processing market, while the harvesting sector expected loss of money from export operations and an excess of wood.

“The ban helps to increase the amount of secondary prepared wood in Ukraine. And this further helps to create more working places, which gives more tax to the state”

(Interview with private processing company)

“With no export allowed there is too much timber on Ukrainian market and we can't sell all of our timber but still we have to cut it down. This means that we cut timber that is just lying in heaps getting old”

(Interview with governmental harvesting company)

It seems like the LEB somewhat failed to have large positive effects on both the processing- and harvesting sector. The secondary prepared wood in Ukraine increased slightly but not as much as expected. At the same time, the harvesting sector loses money from non-export and much wood goes to waste because it cannot be sold on the national market.

The reason for this could be a lack of other legal frameworks helping the LEB to be a successful tool. The LEB might not be working on its own, and it needs other supporting legal changes in the country in order to work. Maybe the Ukrainian parliament's decision to implement the LEB was taken too fast, without enough background studies of the effects. Porter generic strategy describes the importance for an organisation to adjust their business model to the current business environment. The implementation of the LEB brings a considerable change to the Ukrainian forestry business environment, meaning that the organisations operating in it need to adjust their strategy. This did not happen in Ukraine, which can be an explanation to the lack of positive effects of the. Porter generic strategy describes how a company, which does not choose a business model can end up in a scenario called “stuck in the middle”. This happens when you choose to not act to a change and it is usually not beneficial for a company. Most companies in this study had not or did not plan to adjust their business to the LEB (Murray, 1988).

5.3.2 Politic

It might not only have been legal weaknesses that lowered the positive effects of the LEB. Political issues connected to corruption such as; illegal export, illegal harvesting, fake documents and poor border controls were mentioned by all private companies and is estimated to have large impact on the effects of the LEB. If illegal export is still going on, as mentioned by several private companies, the LEB is not working and positive effects of the ban can be lost. Illegal export would mean that governmental companies can still sell their timber abroad to a higher price, leaving the Ukrainian processing companies with less or more expensive wood. This would mean that the value added in the processing step is lost for the country. Illegal export might still be possible due to fake documents of trains leaving the country, meaning the border control does not function, as it should. These problems connected to corruption seem to hinder the LEB from working as expected (Transparency International, 2016).

Also, if illegal export is going on, this might be the explanation to why the equilibrium model of supply and demand is not valid in this case. “trade theory” will also not give the expected results if the borders are not 100 % closed. This theory was chosen for the research to help investigate what happens when the borders are being totally closed for export (Andersson et. al. 2003).

5.2.3 Economic

The economic results of this study is clear proof of that the LEB did not give the expected effects. Instead of getting a decreased price on the domestic Ukrainian market, as aimed, the prices increased slightly. When it comes to explaining this it is confusing for the researcher, since the explanations from the private- respective the governmental companies varies. The explanation from most of the governmental companies, which says that they have to keep the price high to get some money, has poor reliability. This is because all economic theories suggest that the prices should sink when demand decreases, which happens after an export ban (Resosundarmo & Yusuf, 2016). The explanation from the private processing companies seem more reliable from a researchers point of view. Suggesting that some wood is still being exported illegally, which means that the harvesting sector in Ukraine can afford to keep the national prices on a high level. Another explanation would be that the governmental companies keep the prices high, loose much wood, which they can't sell on the Ukrainian market and the private processing companies cannot buy more wood because it is too expensive. This explanation seems least likely because it would mean a loss for the whole Ukrainian forestry sector, both processing- and harvesting.

Although the domestic prices rose with the LEB, a few companies are buying more wood now because even if it is expensive it is available, which it wasn't before the LEB. This is one example of a small positive effect brought by the LEB.

5.2.4 Social

Despite many factors proving lack of results from the LEB, there has been an improvement. The most important is maybe an increase of employees on one third of the interviewed companies. This increase had happened already 5 months after the implementation of the LEB and hopefully this trend continues. More employees means giving more people jobs and more taxes to the state. Maybe this is a start, which will develop into further positive effects.

5.2.5 Technological

When it comes to equipment for processing of wood it seems like this has created an issue for many of the interviewed companies, where most of them complain on the 10-30 % import tax. This makes it too expensive to import good equipment for efficient processing and in Ukraine most of the available equipment is old and inefficient. Some companies had bought new equipment since the implementation of LEB, although some other companies sold some of their equipment. Overall the condition of many companies processing equipment is poor and some of the small private companies only have simple saw lines for making boards. The added value from timber to board is not as good as for ready furniture and in this interview only one company makes furniture. For more value added to Ukraine's national forestry market it is necessary with equipment of higher quality. This is only possible through import and for this the state would need to remove the high import tax. This is further proof that the LEB should maybe not be implemented by its own without a careful analyse of the market and its needs. Maybe the positive effects of the LEB would be larger if the tax of importing equipment would be removed.

5.2.6 Environmental

One additional goal when implementing an LEB in Ukraine was to reduce the country's high levels of over harvest, which creates environmental issues. After the interviews in this research, results show that the harvest volume in Ukraine is controlled by the state in Kiev. This volume was not changed in 2015 when the LEB was implemented, meaning that the governmental forestry companies still has to harvest the same volume as before. As the researcher of this study I find it strange that the harvest volume should stay on the same level after putting an export ban in action. This would mean that the Ukrainian processing market would need to buy the same amount of wood as both the international and domestic processing market did before the ban.

5.3 Discussion of key findings

Most governmental companies explain in the interviews that they now, after the LEB, fail to sell all their timber on the national market because there is not enough demand from the national processing companies. At the same time they have not lowered the price of timber on the Ukrainian market. The national processing companies explain that the high timber price on the national market is one reason why they cannot expand their business and buy more timber from the governmental forestry companies. According to this it seems like the governmental companies would lose profit from keeping the prices on the local market this high, where the prices did not sink after implementing the LEB. Theories suggest that when supply goes up, which it does when export is no longer allowed; the price would normally go down (Resosundarmo & Yusuf, 20016). Clearly the LEB has not had this effect in Ukraine and there are some possible explanations to why the prices have not gone down as expected. Illegal export could be one of them, meaning that the supply share on the local market has actually not increased as much as it should have. In this case the governmental companies could still be exporting timber illegally for higher prices, making it less profitable to sell for a lower price on the local market, just as before the LEB. Illegal export was mentioned by many of the interviewed private companies and the fact that Ukraine is a country with high levels of corruption might support the theory of illegal export of wood (Transparency International, 2016). Another factor supporting this theory is the field trip to the Romanian border, made by the researcher of this study where there were many trains filled with timber crossing the border to Romania.

If the theory of some illegal export of wood to Romania would be correct, the question still remains, why is this happening? Is this illegal export a result of lack of demand on the local market, forcing the forestry companies to export illegally to make money? Or is the illegal export the reason why national processing companies in Ukraine cannot develop further because of low supply of timber on the local market?

It does not seem like it is only the high timber prices on the local market that creates an issue, but also the high tax on importing equipment for processing. This is an issue mentioned by all processing companies, but even if they had processing equipment the wood is still expensive.

As a conclusion of this it seems like when the LEB was implemented in Ukraine it happened too fast, without enough background studies and preparations. The idea was good to begin with, but for an LEB to work in a proper and successful way it needs support from other laws and theories. I would state that an LEB without other supporting laws is not a good idea. An implementation of an LEB means that the country closes its borders for export of wood, nothing more. When this happens, there will be many following effects, as proved in this research.

Table 3. Effects, reactions and possible solutions for Ukraine to adapt to the LEB

| Expected effects of LEB | Necessary reactions | Actual reactions | Possible solutions |
|---|--|---|--|
| Increased supply on national market | Increase national processing capacity | Too expensive to import processing equipment | Remove 30% import tax of processing equipment |
| Lower timber prices on the Ukrainian market | State companies lower starting price of auctions | Prices were kept the same on the Ukrainian market | Set a national pricelist, instead of having auctions |
| Decreased harvesting volume | State companies need to lower harvest volume | State companies did not lower the harvest volume | Lower national harvest targets on political level |
| All timber stays in Ukraine | State companies should only sell to local market | State companies might still be exporting timber | Stricter border controls with educated staff |

It seems like the effects of the LEB in Ukraine happened too fast for the national market, which had no chance of reacting in time to adjust to this new market situation. It would probably have been necessary to set additional laws and rules concerning the expected effects of the LEB.

With all this said, I must still state that the LEB has had some positive effects, just not in the large scale, as expected. The fact that one third of the interviewed companies had more facilities and more employees than before 2015, show that the law has provided some value added to the country. Also the three companies who increased their product range after the implementation of the LEB are proof of positive effects.

Still, the fact remains that the positive effects are small. One explanation seem to be the political instability in the country, where more than half of the companies (10 of 18) explained in the interviews that they have no plan on adjusting to the LEB, since it might be taken away next year. In other words, Ukraine's political instability creates a situation where companies are afraid to react on market changes, such as the LEB. Porter generic strategy explains the importance of reacting to market changes in order to succeed in a business environment. We might conclude that most of the Ukrainian forestry companies seem to have ended up in the "stuck in the middle" state in Porter Generic Strategy, which is not a successful business strategy. They have simply chosen not to react to the changed business environment (Monahan & Rahman, 2011).

6 Conclusions

Firstly, the general attitude towards the LEB from national forest companies is characterized by an uncertainty, where most companies choose to have a cautious approach. This general attitude seems to come from Ukraine's history of political uncertainty, where new laws and regulations can change any time. When a market acts with this kind of uncertainty it might not conform to what theories suggest and the market reactions might be other than expected.

The private forest sector is in general positive towards the idea with the LEB, although the results have not ended up as well as they expected. They expected lower prices on the local market, which would allow them to buy more wood and increase their production. There is more wood available on the local market now, but the prices increased slightly for most tree species and qualities. Another important aspect, which seems to hinder the domestic processing industry from developing further, is the high import tax of processing equipment.

Another noteworthy result of this research is that the total harvesting volumes in Ukraine has stayed the same, even though one aim with the LEB is to combat over harvest.

The prices of timber on the local market did not go down as expected, instead they rose slightly and one possible explanation to this is illegal export operations. This study show quite reliable proof of that some illegal export is still going on from Ukraine to Romania by train. This is possible because of false documents of the trains, where timber is being classified as fuel wood. No additional controls of the trains seem to be made. This means that it does not matter what is on board the train, but only what the document says is on board.

Even though many things have not turn out as good as expected so far after implementing an LEB in Ukraine, some things have improved. There is more wood available for the national processing companies, many companies bought more processing equipment and some has employed more workers. It is also important to remember that we are still in the early stages after the implementation and it might take a while for the market to adjust and react to this new business environment. After 10 years, which is the time limit of the LEB, the positive effects might have increased.

So is the LEB an effective tool to combat over harvest, illegal harvesting and an undeveloped national processing industry? Some of the interviewed organisations mentioned that the implementation was a too drastic step trying to overcome the problems within the Ukrainian forestry sector. The market reaction suggests the same thing, where there is a slight confusion and an uncertainty. As suggested by a number of respondents, the LEB could have been inserted in smaller steps so the industry would get a better chance to respond to the market changes. A suggestion would be to start with a 50 % ban, where only 50 % of the country's roundwood could be exported and the rest sold on the local market, then gradually increase this number. This would of course require strict border controls where volumes are being checked and it might be resource demanding.

Also this study proves that the LEB is not a strong enough tool by itself to combat all issues connected to over harvest, illegal harvesting and an undeveloped processing industry. A business market is very complex and to achieve better results, the market should be analysed closely with help from theories before implementing a ban. If this is done and supporting laws and restrictions are being implemented, the LEB can probably be an effective tool to combat over harvest, illegal harvest and an undeveloped processing industry.

This study may be used as guidance for countries thinking about implementing an LEB. It can give an understanding of how a market might react to a large export restriction, such as an LEB, the unexpected positive- and negative effects. Even if the market situation varies from country to country, the results in this study can probably help, mainly developing countries, to analyse and understand the effects of an LEB. My hope as the researcher is that this study will help other countries to understand the importance of a careful analyse of the market and the importance of supporting laws, when implementing an LEB.

For foreign forestry sectors the study can also contribute to an understanding of the complicated structure in the Ukrainian forestry- and wood processing industry. This can in the future create further international contacts and cooperation.

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Appendices

Appendix 1. Interview guide

Name of company:

Organization

Question 1: What is your position in the organization?

Director of the enterprise ☐

Chief-economist ☐

Chief-accountant ☐

Manager in international relations ☐

Other _____

Question 2: Please describe your company, its main goals, activities, products and

Ownership:

Employees:

Formulated strategy:

Turnover:

Facilities:

Main market:

Export share:

Question 3: a) How much wood raw material do you use annually?

b) How and from where do you source the material?

Question 4: a) Does your logs have any environmental certification?

Yes ☐ No ☐ Don' t know ☐

b) How big part of your logs was certified in 2015? (Answer in nearest ten %, for example; 10, 20, 30 etc.)

_____ %

c) What kind of certification/certifications in that case (Name the certification, example FSC, PEFC)?

Question 5: a) Did you export unprocessed round wood before the LEB was implemented?

Yes ☐ No ☐

Did you export any processed wood products before the LEB was implemented?

Yes ☐ No ☐

Knowledge

Question 6: Can you estimate how much you know about the purpose of initialising a LOG-export ban in Ukraine?

Good knowledge ☐ Basic knowledge ☐ No knowledge ☐

Noticed effects

Question 7: a) How has the LEB so far affected your company?

Beneficial ☐ No effect ☐ Disadvantageous ☐

b) Explain in what way it has been Beneficial/ Disadvantageous (round wood supply, round wood prices, marketing etc.)

Question 8: The LEB is expected to develop the local forest-based industry and is therefore expected to create greater value-added as well as more job opportunities in the country. Do you agree with the statement that LEB has to stimulate Ukrainian forest and wood based companies? For example, production of more processed wood with additional value or more working opportunities in the country.

Yes ☐ No ☐ Don't know ☐

Question 9: a) Have you made any changes in your industry because of the LEB when it comes to:

Employees

More employees than before ☐ No change ☐ Less employees than before ☐

Facilities

More facilities than before ☐ No change ☐ Less facilities than before ☐

Export share

More total export than before ☐ No change ☐ Less total export than before ☐

Main market

Have you changed your main market?

Yes ☐ No ☐

Products

Have you changed your product mix?

Yes ☐ No ☐

b) Can you explain some of the biggest changes you have made?

Question 10: a) If you harvest forest in your company, have you decreased your total harvest volume since the log export ban started?

Yes ☐ No ☐

b) Do you know with how many percent in that case? (Answer in nearest ten %, for example; 10, 20, 30 etc.)

_____ %

Question 11: Have you noticed any challenges competition- wise from other national forest companies since the LEB was inserted?

Yes ☐ No ☐

Expectations

Question 12: a) Do you think the LEB will be an effective way in decreasing over- harvest and illegal harvesting in Ukraine?

Yes ☐ No ☐

b) Why/ Why not?

Question 13: a) Are you planning on changing your business as a step to adjust to the LEB?

Yes ☐ No ☐

b) In what way?

Question 14: In general, what do you think about the LEB and how do you think it will effect the forest sector in Ukraine?

Question 15: Finally, can you describe the future for your company? What strengths and weaknesses do you have? And what opportunities and requirements do you see for success in the future?

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